LEGISLATIVE HEARING ON RADIATION MEASURES—H.R. 1811, S. 1002 AND S. 453

HEARING

BEFORE THE

SUBCOMMITTEE ON
COMPENSATION, PENSION AND INSURANCE

OF THE

COMMITTEE ON VETERANS' AFFAIRS
HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

FIRST SESSION

MAY 20, 1987

Printed for the use of the Committee on Veterans' Affairs

Serial No. 100-16

U.S. GOVERNMENT PRINTING OFFICE
76-912 ←. WASHINGTON : 1987

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

H761-22

COMMITTEE ON VETERANS' AFFAIRS

G.V. (SONNY) MONTGOMERY, Mississippi, *Chairman*

DON EDWARDS, California
DOUGLAS APPLEGATE, Ohio
DAN MICA, Florida
WAYNE DOWDY, Mississippi
LANE EVANS, Illinois
MARCY KAPTUR, Ohio
TIMOTHY J. PENNY, Minnesota
HARLEY O. STAGGERS, JR., West Virginia
J. ROY ROWLAND, Georgia
JOHN BRYANT, Texas
JAMES J. FLORIO, New Jersey
KENNETH J. GRAY, Illinois
PAUL E. KANJORSKI, Pennsylvania
TOMMY F. ROBINSON, Arkansas
CHARLES W. STENHOLM, Texas
CLAUDE HARRIS, Alabama
JOSEPH P. KENNEDY, II, Massachusetts
ELIZABETH J. PATTERSON, South Carolina
TIM JOHNSON, South Dakota
JIM JONTZ, Indiana

GERALD B.H. SOLOMON, New York
JOHN PAUL HAMMERSCHMIDT, Arkansas
CHALMERS P. WYLIE, Ohio
BOB STUMP, Arizona
BOB McEWEN, Ohio
CHRISTOPHER H. SMITH, New Jersey
DAN BURTON, Indiana
MICHAEL BILIRAKIS, Florida
THOMAS J. RIDGE, Pennsylvania
JOHN G. ROWLAND, Connecticut
ROBERT K. DORNAN, California
ROBERT C. SMITH, New Hampshire
JACK DAVIS, Illinois

MACK FLEMING, *Chief Counsel and Staff Director*

SUBCOMMITTEE ON COMPENSATION, PENSION AND INSURANCE

DOUGLAS APPLEGATE, Ohio, *Chairman*

TIMOTHY J. PENNY, Minnesota
TIM JOHNSON, South Dakota
DAN MICA, Florida
LANE EVANS, Illinois

BOB McEWEN, Ohio
CHALMERS P. WYLIE, Ohio
MICHAEL BILIRAKIS, Florida
ROBERT C. SMITH, New Hampshire

CONTENTS

May 20, 1987

Page

Legislative Hearing on Radiation Measures—H.R. 1811, S. 1002 and S. 453..... 1

OPENING STATEMENTS

Chairman Applegate 1
Hon. Bob McEwen..... 3
Hon. Gerald B.H. Solomon, ranking minority member of the full Committee on Veterans' Affairs 4
Hon. Lane Evans..... 5
Hon. Tim Johnson..... 5

WITNESSES

Cullinan, Dennis M., assistant director, national legislative service, Veterans of Foreign Wars of the United States 27
Prepared statement of Mr. Cullinan 209
Faron, Robert S., member, board of directors, the National Association of Atomic Veterans; accompanied by: Lucius Smith, III, executive director, National Association of Atomic Veterans 21
Prepared statement of Mr. Faron 189
Fenton, Edward Victor Fenton, vice president and director, south central region, National Association of Radiation Survivors; accompanied by: Dorothy Legarreta, administrative director 32
Prepared statement of Mr. Fenton 213
Heilman, John F., national legislative director, Disabled American Veterans... 24
Prepared statement of Mr. Heilman 199
Ivers, Donald L., General Counsel, Veterans' Administration, accompanied by Arthur D. Graham, M.D., Director, Radiology Services, Department of Medicine and Surgery; Richard B. Standefer, deputy vice chairman, Board of Veterans' Appeals, and Dean Kurtz, chief, advisory review staff, Compensation and Pension Service 9
Prepared statement of Mr. Ivers 76
Moran, Bob, associate legislative director, Paralyzed Veterans of America 26
Prepared statement of Mr. Moran 206
Rowland, Hon. J. Roy, a Representative in Congress from the State of Georgia 6, 23
Prepared statement of Dr. Rowland appears 71

MATERIAL SUBMITTED FOR THE RECORD

Bills:
H.R. 1811—A Bill to amend title 38, United States Code, to provide certain benefits to veterans and survivors of veterans who participated in atmospheric nuclear tests or the occupation of Hiroshima or Nagasaki and who suffer from diseases that may be attributable to low levels of ionizing radiation 39
S. 453—A Bill to amend title 38, United States Code, and the Veterans' Dioxin and Radiation Exposure Compensation Standards Act to improve the standards for determining whether a radiation-related disease is service-connected, and for other purposes 42

Page

Bills—Continued
S. 1002—A Bill to amend title 38, United States Code, to provide disability and death benefits to veterans (and survivors of such veterans) exposed to ionizing radiation during the detonation of a nuclear device in connection with the United States nuclear weapons testing program or the American occupation of Hiroshima or Nagasaki; and for other purposes 49
Papers:
Defense Nuclear Agency Fact Sheet, "Hiroshima and Nagasaki Occupation Forces" 85
Defense Nuclear Agency Fact Sheet, "Nuclear Test Personnel Review" 114
Statements:
AMVETS 180
The American Legion 183

LEGISLATIVE HEARING ON RADIATION MEASURES—H.R. 1811, S. 1002 AND S. 453

Wednesday, May 20, 1987

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COMPENSATION, PENSION AND INSURANCE,
COMMITTEE ON VETERANS' AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to notice, at 1:35 p.m., in room 334, Cannon House Office Building, Hon. Douglas Applegate (chairman of the subcommittee) presiding.

Present: Representatives Applegate, Johnson, Evans, and McEwen.

Also Present: Representatives Rowland (of Georgia), and Solomon.

OPENING STATEMENT OF CHAIRMAN APPLEGATE

Mr. APPLEGATE. If everyone would take their seats we will get the meeting started.

Before we proceed, I would just like to take a second to recognize a former staff director of this House committee for a great many years, Mr. Oliver Meadows. I believe he is in the audience. Oliver, nice to have you here.

[Applause]

Mr. APPLEGATE. I think as you all know, we are here this afternoon to take testimony from a number of witnesses regarding H.R. 1811, which would establish a statutory presumption of service connection for certain diseases suffered by veterans who, while on active duty, may have been exposed to low levels of ionizing radiation.

We have also asked the witnesses to comment on the two Senate bills, S. 1002 and S. 453, which are somewhat similar, at least in purpose, to 1811.

We know that during the period from 1945 to 1963, the U.S. Government exploded some 235 nuclear devices in the atmosphere over the American southwest and the Pacific Ocean. It is estimated that approximately 220,000 to 250,000 military personnel participated in these tests. Additional personnel may have been exposed to such radiation while participating in the occupation of Hiroshima and Nagasaki after the atomic bombings of those cities in 1945.

What we do not know is how much exposure they received; nor do we know the long-term health effects of such exposure on these veterans.

Due to the tremendous degree of uncertainty existing within the scientific and medical communities as to the long-term health effects of exposure to low levels of radiation, and because the levels of radiation to which these veterans were exposed may never be accurately determined, we are considering legislation that would give relief in the form of a presumption that will provide disability compensation and death benefits to those exposed or to their survivors.

It is very important, however, for anyone considering legislation purporting to afford relief to this group of veterans to understand that the principle of "service connection" is one that is based on a point-in-time relationship, not a cause and effect relationship. This permits the granting of service connection for a great number of disabilities that could not have been considered to have been "caused" by service, but, rather, were incurred or manifested during service.

Congress has, from time to time, expanded this principle through the use of statutory presumptions that consider certain diseases to be service connected, notwithstanding the fact that there is no record of such disease during the period of service.

Such presumptions are based upon the theory that, if the disease becomes manifest to a certain degree within a specified period of time after an individual's discharge from service, principles of sound medical judgment will justify recognizing the inception of the disease as having occurred during a particular point in time coincident with the individual's service on active duty.

The establishment of presumptions for diseases suffered by veterans exposed to ionizing radiation, on the other hand, poses somewhat of a different type of problem because so many uncertainties continue to exist in the scientific and medical communities as to the question of the long-term health effects of exposure on the participants.

There appears to be a growing amount of evidence that some veterans exposed to ionizing radiation are experiencing serious medical problems. However, available data falls short of meeting the test that, in the exercise of sound medical judgment, these diseases are related to, or were incurred during, military service.

Congress has taken action in recent years by enacting legislation authorizing health care services for veterans exposed to radiation who may be suffering from illnesses not found to be the result of other causes; by mandating further studies into the long-term health effects of such exposure; by requiring the Department of Defense and Defense Nuclear Agency to issue new guidelines pertaining to the preparation of radiation dose estimates in connection with VA claims; and by requiring the Veterans' Administration to issue new regulations giving special consideration to the adjudication of individual claims based on radiation exposure.

Notwithstanding these efforts, it remains very difficult today for a veteran to establish that his or her disability was caused by radiation exposure. Therefore, the establishment of a presumption would appear to be the only means, given the present state of medical and scientific knowledge, upon which service connection may be granted for these disabilities.

I think that we are justified in holding these hearings on H.R. 1811 because I believe it takes a giant step towards assisting those

veterans who are suffering from disabilities that may eventually be proven to have been caused by exposure to low levels of ionizing radiation.

I applaud Dr. Rowland of Georgia and John Paul Hammerschmidt for their leadership in introducing this important legislation and I am proud to have been an original cosponsor along with Chairman Sonny Montgomery, Jerry Solomon, and the vice chairman of this subcommittee, Bob McEwen.

I have invited Dr. Rowland to join us here on the rostrum after giving his testimony on H.R. 1811. We have a standing rule that any member of the full committee may be invited to sit in as an ex officio on this subcommittee and will participate as a subcommittee member, and I am very happy to welcome him today.

But before hearing from you, Dr. Rowland, I would like to recognize my very able and very capable vice chairman, colleague, and fellow Ohioan, Bob McEwen.

OPENING STATEMENT OF HON. BOB MC EWEN

Mr. MCEWEN. Thank you very much, Mr. Chairman.

This hearing which you have called has exceptional importance and I appreciate your initiative and your responsible leadership on addressing the problems of our Nation's atomic veterans.

I am pleased to be, along with you, one of the original cosponsors of H.R. 1811 to improve benefits for atomic veterans and their survivors. The bill will be the subject of today's hearings as will Senate bills. H.R. 1811 was introduced by Dr. Roy Rowland as you mentioned, and he merits our special thanks and the thanks of all veterans for his work on their behalf.

Dr. Rowland is the only medical doctor on either of the Veterans' Affairs Committees, so when he speaks about the subject of disabilities associated with ionizing radiation he does it with objective authority. He has taken a special interest in the problems of atomic veterans and his views command the respect of every member of the committee. I look forward to his testimony this afternoon with particular anticipation.

Also testifying this afternoon are representatives of the Veterans' Administration and several veterans service organizations including those especially representing atomic veterans.

Compensation of atomic veterans has presented some knotty problems in scientific investigation and in the less-than-adequate historical record on individual exposures. I think it should be emphasized today that with H.R. 1811 we are only looking at presumptions of disability. The bill does not attempt to define every compensable disability which the VA should recognize when presented with sufficient evidence of exposure to ionizing radiation.

Mr. Chairman, I believe H.R. 1811 is a significant step in addressing the needs of atomic veterans and their survivors. However, this legislation certainly should not be regarded as the last step to help our atomic veterans. As we learn more, in my view, it is likely that we will find it appropriate to take further action. I am hopeful, however, that our atomic veterans can now be assured that our active interest and concern will continue.

I thank you very much, Mr. Chairman.

Mr. APPLEGATE. Thank you, Mr. McEwen.

Now I would like to recognize the ranking member of the full committee, a very capable and able colleague, Mr. Jerry Solomon.

STATEMENT OF HON. GERALD B.H. SOLOMON, RANKING MINORITY MEMBER OF THE FULL COMMITTEE ON VETERANS' AFFAIRS

Mr. SOLOMON. I thank the chairman of the subcommittee.

Mr. Chairman, I would like to say a few words—I do have to get on to some Foreign Affairs assignments that are going on right now but being extremely interested in this matter, I wanted to at least say a few words.

As the ranking minority member and as an ex officio member of this subcommittee and as a cosponsor of this bill, I appreciate this opportunity to speak on its behalf and about two of our distinguished colleagues.

Mr. Chairman, questions, confusion and controversy have marked the subject of ionizing radiation ever since the fateful day in 1945 when the nuclear genie was let loose with the first atomic bomb explosion. Military service members were present then; they were present after Japan was bombed, and they were present at the subsequent above-ground testing. Hindsight and reflection have shown us that in those early days of the atomic age, as it was called at that time, people were being exposed with little or no protection to terrible dangers which were not well understood at that time in our history.

Now, so many years later, we are called upon to make hard decisions which seem to demand wisdom sometimes beyond that of mortal men. The scientific community now generally accepts that certain diseases may be caused by radiation. The Congress is fortunate at this time to have its only doctor, Dr. Rowland, on the House Veterans' Affairs Committee. He has been at the forefront in dealing legislatively with the needs of atomic veterans and their survivors. His expertise in medicine combined with his reputation as a very level headed and caring man have caused many of us to consider very carefully his judgments about these matters.

At the forefront with Dr. Rowland has been the former ranking member of this committee, John Paul Hammerschmidt. He, too, has long been a leader in addressing the problems of atomic veterans and he makes his considerate influence felt on behalf of them. I salute both of those men.

I am a cosponsor of this bill which Dr. Rowland introduced and it is clear how I felt about the judgment in this instance. So I have joined Dr. Rowland, our full committee chairman, Mr. Montgomery, Mr. Hammerschmidt, Mr. McEwen, and you, Mr. Chairman, in offering a bill which will really help many of our atomic veterans.

I thank you for the opportunity to sit in on this subcommittee meeting.

Mr. APPLEGATE. Thank you, Mr. Solomon.

Before we proceed we will recognize Mr. Evans of Illinois.

OPENING STATEMENT OF HON. LANE EVANS

Mr. EVANS. Thank you, Mr. Chairman. I want to commend you for holding this hearing on legislation which needs to address the need for further compensation of veterans who were exposed to radiation during their service to our country and who now suffer from certain diseases and conditions associated with radiation exposure.

I am very concerned about these issues. I appreciate the gentleman from Georgia for his leadership, along with John Paul Hammerschmidt's on this issue, as well as all the members of the committee that have been concerned about this.

In the 99th Congress I introduced legislation which sought to address atomic veterans' concerns and, therefore, I have a particular interest in today's proceedings. I look forward to the testimony from our veteran service organizations, particularly the National Association of Atomic Veterans and the NARS organizations, two groups that we don't always hear from concerning other veterans' legislation so we look forward to their testimony as well as the other veterans' organizations today.

I yield back to you, Mr. Chairman.

Mr. APPLEGATE. Thank you, Mr. Evans.

Mr. Johnson of South Dakota.

OPENING STATEMENT OF HON. TIM JOHNSON

Mr. JOHNSON. Thank you, Mr. Chairman.

I simply want to state that I, too, congratulate you for holding this hearing—badly needed hearing—on H.R. 1811. I am proud to be a cosponsor of that piece of legislation. I think it is an effort to redress something that needs immediate redress. I am pleased to see the progress that is being made. I am looking forward to the testimony of the groups we have with us here today—very credible groups—representing the best interests of American veterans generally. I am looking forward to at last making the kind of progress that we need to make on the issues pertaining to atomic veterans.

Thank you again, Mr. Chairman.

Mr. APPLEGATE. Thank you, Mr. Johnson.

Let me just say that with all of the sponsors that we have on the bill, the numbers, and those in the various positions in this committee, it would appear to me, as it does to most people, that the bill has a pretty good chance of passing. But let's get to our first witness this afternoon, and all that I was going to say about him was already said by Mr. Solomon of New York so I am just going to ditto those same remarks because Dr. Roy Rowland is one of our very outstanding members of the committee. And being a medical doctor, he has the expertise and the background, and is very familiar with the subject. We depend upon his input and for his guidance into these matters; and for introducing this bill, I know that you have made a lot of people very happy with that.

I am very happy to introduce you and hear what you have to say. Dr. Rowland.

STATEMENT OF HON. J. ROY ROWLAND, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF GEORGIA

Dr. ROWLAND. Thank you very much, Mr. Chairman. I do thank all of you there for your remarks, and I appreciate the opportunity that you are giving today for me to testify here and for allowing me to join you and my other colleagues at the rostrum after my testimony in order to question other witnesses who will appear before this subcommittee.

I also want to thank you and the ranking minority member on this subcommittee, Mr. McEwen, for your cosponsorship of this legislation. It is very encouraging and I appreciate the fact that the leadership of the full committee on both sides, and also on the subcommittee, has joined in being original cosponsors of this legislation.

Before I begin, I also want to thank my friend and colleague John Paul Hammerschmidt who you have all already mentioned, for the support and work he has done on this legislation, and with respect to this issue over the years.

Mr. Chairman, I am pleased to offer my testimony with respect to the legislation I have introduced, H.R. 1811, the Atomic Veterans Compensation Act of 1987.

The bill would provide service-connected benefits for those veterans who are suffering from certain radiation-related cancers and who participated in the above-ground testing of nuclear weapons conducted by the Department of Defense during the years 1945 to 1963, or the American occupation of Hiroshima and Nagasaki, Japan after the atomic bombing of those cities in 1945.

As you know, this comittee is not unfamiliar with this important subject and, in fact, it has reported out legislation aimed at addressing the needs of atomic veterans. In the 98th Congress, we passed legislation, the Veterans' Dioxin and Radiation Exposure Compensation Standards Act, which would have provided a temporary disability or death allowance for atomic veterans. We also included a provision that established a scientific council to advise the VA Administrator on the finding of scientific studies relating to the possible adverse effects of exposure to dioxin or radiation. Unfortunately, only the scientific council survived the House and Senate Conference on the bill.

Today, as we focus on H.R. 1811, we will be discussing a much more liberal approach to the health concerns of the atomic veteran, yet, one which addresses the gray area we find ourselves in when we start talking about low levels of ionizing radiation and the effect that this has upon the development of disease.

Under current law and regulations, it is extremely difficult for atomic veterans to prove that the disease they have developed is a "service-connected" disability that would entitle the veteran to compensation.

The relationship between low levels of ionizing radiation and the development of cancer presents an extremely difficult problem for medical specialists, not to mention the disabled veterans.

Under the bill, the development of certain diseases within certain prescribed time limits will be presumed to have been incurred

in or aggravated by the veteran's participation in the specified radiation-risk activities.

In working on this legislation, I have been very concerned that we be as specific as possible in determining which diseases would entitle an atomic veteran to compensation. At the present time, the bill includes the following diseases: all forms of leukemia (except chronic lymphatic leukemia), polycythemia vera, thyroid cancer, bronchogenic carcinoma, and female breast cancer.

I chose these diseases based on the evidence I have seen regarding the relationship of these diseases and ionizing radiation. In providing a presumption of service connection, I am concerned that the diseases for which the presumption is provided be those in which medical evidence shows a connection.

This list, however, should not be considered as all inclusive. If, during the course of this or any other hearings on this legislation, other diseases are shown to have a high incidence rate among these veterans, I am open to examining the possibility of including those diseases in this bill.

Additionally, I am similarly inclined to include veterans who, while on active duty, have been exposed to ionizing radiation in situations other than those prescribed in the bill. The cost estimates I have received on this legislation certainly lend themselves to actions of this sort.

The Congressional Budget Office estimates the cost of the legislation to be about $2 million for each year up until 1992. This is certainly a minimal amount in comparison to the suffering that many of these veterans have endured.

Mr. Chairman, many questions surrounding this issue may, indeed, never be answered with any degree of certainty. However, we should certainly give the benefit of the doubt to our veterans.

I just want to thank you again for allowing me to testify and to participate in the questioning of other witnesses here today. At this point I would be pleased to answer any questions that you might have.

[The prepared statement of Dr. Rowland apears at p. 71.]

Mr. APPLEGATE. Thank you very much, Dr. Rowland. I appreciate your testimony.

I just had a couple of short questions. One of them was in this time period of equality and one of the diseases that you had, you have female breast cancer. Should we keep that in as female or should we just have it as breast cancer?

Dr. ROWLAND. I think we can just have breast cancer. Male breast cancer is extremely rare, but it does occur. So, certainly breast cancer, not specifying male or female, I think would be appropriate.

Mr. APPLEGATE. All right.

We know that we have some other bills that have been introduced, particularly 1002 in the Senate, which lists a host of other things. I am sure that you have had an opportunity to look at all those, but what other diseases do you think could possibly be included in this? What other diseases might be gotten from this, or do you think that you have covered it pretty good, at least from the information that we now have?

Dr. ROWLAND. No, I think there are several other diseases that can be included. In fact, in my statement that I just made, I stated that certainly I am open to considering other diseases. The legislation as written was a beginning—you have to begin somewhere, and it was simply a beginning.

I have information from the National Academy of Science, and the National Institute of Health working group that shows that there are several other diseases with regard to which there is an excess number of cases related to exposure to low doses of ionizing radiation that I certainly do also believe should be given consideration.

I would look forward in this hearing to seeing if something can be developed that would give us some direction about where we should go in dealing, as I mentioned, not only with additional diseases but with additional service personnel who may have been exposed. For example, technologists, X-ray technologists, those people who work on submarines that are nuclear-powered. I think there are a considerable number of people that need to be given consideration also in addition to those veterans who were exposed to the ionizing radiation in the circumstances that I have already described.

Mr. APPLEGATE. Thank you very much, Dr. Rowland.

Mr. McEwen?

Mr. MCEWEN. I wish to thank the gentleman for his excellent testimony and for his help today.

Mr. APPLEGATE. Mr. Solomon?

Mr. SOLOMON. No, we will go on with the witnesses.

Mr. APPLEGATE. Mr. Evans?

Mr. EVANS. I am pleased with your legislation but also your willingness. I know there is a lot of pride in authorship to make some room for some amendments and I look forward to working with you as we move this legislation forward on some of those specific amendments. I appreciate your willingness in that regard.

Dr. ROWLAND. Let me also say to my good friend and colleague from Illinois, that he has certainly been interested in this area and has worked hard on it, as has already been mentioned. I think that if we continue to do on this committee as we have always done, work together, we always come out with good legislation that is clean, and when it gets to the floor there is not a lot of dissention and discussion about it.

Mr. EVANS. Thank you.

Mr. APPLEGATE. Mr. Johnson?

Mr. JOHNSON. No questions.

Mr. APPLEGATE. Okay.

Thank you. Thank you again, Dr. Rowland.

Again, we invite you to sit with us and to review the testimony that will be given and with an opportunity to be able to ask some questions too.

Dr. ROWLAND. Thank you, Mr. Chairman.

Mr. APPLEGATE. Next will be a panel with Mr. Donald Ivers, General Counsel of the Veterans' Administration, who will be accompanied by Dr. Arthur Graham, Director of Radiology Services, Department of Medicine and Surgery, and Mr. Richard Staudafer, Deputy Vice Chairman, Board of Veterans' Appeals, along with

Mr. Dean Kurtz, Chief, Advisory Review Staff, Compensation and Pension Services.

Gentlemen, welcome to the committee this afternoon.

Mr. Ivers, it is good to see you again.

STATEMENT OF DONALD L. IVERS, GENERAL COUNSEL, VETERANS' ADMINISTRATION, ACCOMPANIED BY ARTHUR D. GRAHAM, M.D., DIRECTOR, RADIOLOGY SERVICES, DEPARTMENT OF MEDICINE AND SURGERY; RICHARD B. STANDEFER, DEPUTY VICE CHAIRMAN, BOARD OF VETERANS' APPEALS, AND DEAN KURTZ, CHIEF, ADVISORY REVIEW STAFF, COMPENSATION AND PENSION SERVICE

Mr. IVERS. Thank you, Mr. Chairman. If I might, I would like to ask that my statement be submitted in its entirety for the record.

Mr. APPLEGATE. Without objection, that shall be.

Mr. IVERS. I will make brief remarks addressing certain of those subjects.

You have already introduced the people at the table with me. I have asked that they be here to address a number of questions that I am sure that I won't be able to fully address.

I am pleased to be here today, Mr. Chairman and members of the subcommittee, to present the views of the Veterans' Administration on the three bills on the agenda—H.R. 1811, S. 453 and S. 1002—with particular emphasis on H.R. 1811.

Each would provide disability and death benefits for veterans and their survivors for certain radiogenic diseases manifested within a specified period of time following a veteran's participation in nuclear testing or the American occupation of Hiroshima and Nagasaki prior to July 1, 1946.

This agency is committed to assuring that the health concerns of radiation-exposed veterans are responsibly addressed. We have fully implemented those provisions of law that authorize free, comprehensive medical care for atomic veterans regardless of whether their ailments can be shown to be radiation-related.

We have also worked diligently to devise and apply regulations to ensure the careful, reasoned consideration of their compensation claims on the basis of the best available evidence. The measures under discussion, however, would mark a radical departure from this reasoned approach, and for that reason the VA strongly opposes their enactment.

To date, all authoritative scientific evidence demonstrates that the vast majority of atomic veterans received very low doses of radiation. For example, official film badge data for nuclear test participants show that fully 42 percent received no dose whatsoever, and the average for the entire group was only 0.5 rem. Less than 1 percent received doses exceeding 5 rems, which under current Federal guidelines is the annual allowable exposure for radiation workers.

Doses from nuclear testing fall, on average, near the range of the average annual dose sustained by the general population from natural background sources and routine diagnostic procedures.

The doses for the occupation forces were even smaller, due to a number of historical factors. A worst-case analysis formulated by

the Defense Nuclear Agency shows that no veteran could have sustained more than 1 rem as a result of his participation in the occupation of Hiroshima or Nagasaki.

The policy that the government owes more to veterans disabled as a result of service than to other veterans has guided benefit programs since our Nation's infancy. No one can question the responsibility to compensate for loss of life or health in the line of duty, which is why the VA's programs deserve and enjoy broad public support.

If eligibility criteria are diluted such that significant numbers of beneficiaries whose disabilities are not directly traceable to service can qualify, we fear that public support of our programs will erode and there may be a harmful backlash. That is why it is essential that eligibility standards remain tenable, and that the underlying principle of service connection not be compromised, either by dilution of the eligibility criteria for service-connected-disability compensation or by provision of essentially the same benefits under a different name.

We are also concerned that the bills may not be defensible on substantive due-process grounds. Literally every service member who served even 1 day was exposed to natural background radiation and, since the nuclear age began, to radiation from fallout and X-rays. Virtually all veterans of the modern era received standard X-rays during entrance and separation exams.

We question a policy that would compensate veterans exposed to radiation under certain circumstances, yet deny equal treatment to other veterans who were equally exposed during service.

I note that Dr. Rowland addressed some of those issues in his testimony, and I would like to point out that I am not saying that every veteran was exposed to levels of radiation that would entitle him to compensation even under the proposals before us today.

Mr. Chairman, as recently as 1984, Congress rejected blanket presumptions for atomic veterans, and instead, entrusted to the VA the responsibility for carrying out a policy that would "ensure that Veterans' Administration disability compensation is provided . . . for all disabilities . . . that are connected, based on sound scientific and medical evidence, to . . . ."

We have in place rules to do exactly that, and enactment of these bills would be a serious retreat from the principle that benefit eligibility should be grounded in sound scientific and medical evidence. For these reasons, we cannot countenance so unwarranted an undermining of the concept that benefit eligibility be based on disability incurred in service and must register in the strongest possible terms our objection to these measures.

That concludes my brief statement. We are prepared to take questions from the subcommittee.

Thank you.

[The prepared statement of Mr. Ivers appears on p. 76.]

Mr. APPLEGATE. Thank you very much, Mr. Ivers.

I just have a couple of things. You had mentioned about in Japan, the most that they would get would be a rem. Could you, just for clarification, tell us what a rem is, so that in average, everyday layman's terms, what can we equate that to?

Mr. IVERS. In order for you and me to get a full appreciation of that, I am going to ask Dr. Graham to address that.

Dr. GRAHAM. Thank you.

Mr. Chairman, a rem means "radiation equivalent mammal". In the radiation energies that we are talking about with most X-rays, it is equivalent to the old term of rad, "radiation absorbed dose". To give you a concept of what it might be, it would take approximately 1,000 chest X-rays to equal one rad. However, given an upper GI series where you drank barium, were fluoroscoped and so forth, you could expect to receive somewhere between three and five rad of X-ray exposure to that part of your body that was directly in the beam.

Mr. APPLEGATE. That is the rad?

Dr. GRAHAM. As I say, rad and rem, at the energies that we are talking about, can be used interchangeably but not for all radiation.

Mr. APPLEGATE. Do you have figures as to what you think that the most they may have received in any of the tests?

Mr. IVERS. The DNA has those figures, sir. The statement that I made was based on a DNA worst-case analysis of exposures of troops who participated in the occupation of Hiroshima and Nagasaki.

Mr. APPLEGATE. Could we get that from them, then, from the DNA?

Mr. IVERS. I believe we can get those figures. We will do everything we can to get them from DNA or from our own files and provide them for the record.

Mr. APPLEGATE. The committee would like to have that if you can.

[The information appears on p. 114.]

Mr. APPLEGATE. You didn't mention any estimate for the cost of the three bills. Could you provide for the record what you consider the cost to be and the methodology that you used to arrive at that?

Mr. IVERS. Yes, Mr. Chairman, we can. We can supply that for the record.

We do have cost figures for the three bills that are under consideration that take into account the estimated number of veteran and survivor cases and the cost per case. These figures indicate a cost of approximately $10 million a year for H.R. 1811. Cost figures vary for each bill. I would be glad to submit them for the record along with our cost methodology.

[The information appears on p. 122.]

Mr. APPLEGATE. You estimate, then, at $10 million at year?

Mr. IVERS. Approximately—for H.R. 1811.

Mr. APPLEGATE. For H.R. 1811.

Did you say that you didn't have the figures for the other two measures?

Mr. IVERS. I have them here. Would you like me to state them? I would be glad to submit them for the record along with our cost methodology. The total annual cost for S. 453 and S. 1002, taking into account the same factors (veteran cases as well as survivor cases) is approximately $50 million and $27 million, respectively.

Mr. APPLEGATE. Can you give me any idea why we feel that there is a difference in the cost estimates? We estimate a cost of somewhere around $2 million a year.

Mr. IVERS. I understand that. I don't know whether anyone at the table here is prepared to address that. We would have to have access to CBO's methodology in order to address that. But we would be glad to do that for the record.

Mr. APPLEGATE. Okay, we will check that out.

Let me ask you this: You have indicated that some 28 claims for benefits based upon exposure to radiation have been granted by the Veterans' Administration.

Can you tell me how many of them have been denied, and whether any of the claims have been granted after review by the Central Office as is required?

Mr. IVERS. Dean, can you answer that?

Mr. KURTZ. I can answer that in part if you will allow me to explain.

Since July of 1986, which is the date from which I have the best records available, we have in Central Office in the C&P Advisory Review Staff rendered opinions in 268 claims based upon radiation exposure. Of these, 264 opinions indicated that we saw no relationship between the radiation received and the disability which the claimant currently had. Four opinions indicated we saw a relationship between the radiation exposure in-service and the claimant's current disability.

Now, that doesn't cover the entire period since the enactment of the current radiation regulation, which took effect in September of 1985. Rather, it covers only the period since July of 1986 when we initiated a PC or a computer control in Central Office.

Mr. APPLEGATE. Okay. Thank you very much, Mr. Kurtz.

I will yield at this time to the vice chairman of the committee, Mr. McEwen.

Mr. MCEWEN. Thank you, Mr. Chairman.

The 264 was for what period?

Mr. KURTZ. For the period from July of 1986 to the present. Let me make one correction. There were five claims rather than four, where we saw a relationship.

Mr. MCEWEN. It is our understanding that there may have been thousands of these claims. Is that incorrect?

Mr. IVERS. Over the years, we have received a total of approximately 4,400 claims alleging radiation exposure from participation in atomic weapons testing or the American occupation of Hiroshima or Nagasaki.

Mr. MCEWEN. Where did we get the 264 then?

Mr. KURTZ. It was my understanding your question related to the number of claims or where an opinion has been rendered in Central Office. Was that correct?

Mr. MCEWEN. Yes, that was the question.

Mr. KURTZ. The figure 268 represents the number of claims on which, according to our records, we at Central Office have furnished a final opinion to the regional office since July 1986. In addition, we have currently pending, in my best estimate, about another 40 or 45 that are under review, where a final opinion has not yet been rendered to the regional office.

Mr. MCEWEN. Lets compare the 5,000 with the 264. There's 4,700 missing somewhere, someplace, right?

Mr. IVERS. The figure I gave you, Mr. McEwen, was an approximation. We know of 4,408 total claims submitted to the VA over the years alleging radiation exposure from participation in atomic weapons testing or service with the American occupation of Hiroshima or Nagasaki. That does not necessarily mean that each and every one of those claims has been considered by Central Office, nor does it mean that they have all been considered since July of 1986, which is the time period to which Mr. Kurtz is referring. That is the total number of claims that we have received over the years throughout the system that have been identified as including some allegation of radiation exposure during relevant activities in service.

In many cases, a radiation claim may be secondary to several other claims or may never be fully developed because service connection is granted on a direct or presumptive basis. It depends on the circumstances of the particular claim. However, the total number of radiation claims filed throughout the system over the years that we are aware of, whether currently active or inactive, is approximately 4,400 atomic veterans.

Mr. MCEWEN. Does 28 to 4,700 seem like a plausible ratio to you? There is a complaint by many atomic veterans that they can't get their compensation approved by the VA. Doesn't that ratio tend to support that contention to a logical, impartial observer, that ratio of 28 out of 5,000?

Mr. IVERS. I am not so sure that that is an unrealistic figure, given the scientific and medical evidence that we have with respect to exposure to low levels of ionizing radiation.

I might point out that when we speak of low levels, as I mentioned in my testimony, we are talking about 5 rems and below. According to the DNA, there were 39 veterans exposed to in excess of 25 rems in connection with atomic weapons testing. There are no known cases of radiogenic disease among those 39 veterans at this point.

Mr. SOLOMON. Would the gentleman yield?

Mr. MCEWEN. I yield.

Mr. SOLOMON. I am a little confused over the 4,700 or 5,000. Central Office has reported on 264 back to the regional offices, I guess, since July of 1986.

What is happening? What time span does the 4,700 cover? Are those cases that have been pending for 20 years or perhaps 40 years?

Mr. KURTZ. The 4,700 figure or the 5,000 figure you refer to may have been derived from our special-issue-tracking system. I am not exactly sure when that system went into place, but it certainly went into place prior to 1986 or 1985. So, most certainly there are a number of cases included in the 4,400 figure from our special-issue-tracking system. That figure would include the 268 claims to which I made reference.

Mr. MCEWEN. Don't tell me you understand that.

Mr. SOLOMON. No, I really don't understand it. I really think we ought to look into this. Maybe staff, Mr. Chairman, could look into it.

Mr. IVERS. If I might, Mr. Solomon, we would be glad to submit for the record a full explanation of the 4,400 cases as well as a full explanation of the 268 to which Dean Kurtz referred. However, I think we can clarify this issue right now. The 4,400 are in fact the radiation-exposure claims entered in our computer-tracking system; those claims that have some radiation-related item within them. Those are claims submitted on behalf of atomic veterans over a period of years, most of which have already been adjudicated by the VA. Those are the cases that are at issue, if you will, in the NARS litigation. We can identify them. Specifically, what has happened to each individual case, I couldn't tell you right now. We would be glad to submit for you an explanation of these numbers. This is not a game. The numbers are there. I think we are talking about two different figures here. However, I can assure you that the 4,400 cases are out there and that we can identify them.

Mr. SOLOMON. I understand that you are not misleading the committee intentionally, but from a layman's point of view, do you mean that there are some 4,700 cases out there that have not been finalized, haven't been denied, or approved over a long period of time. Maybe this is why some of the people that were exposed feel the way they do, and maybe justifiably so.

So if you could get that to us in consideration of this legislation and other legislation down the pike, I think it would be most helpful to this committee.

Mr. IVERS. We will be glad to provide whatever information we can on that.

[The information appears on p. 125.]

Mr. MCEWEN. That is the basic concern that we have. The rest of them we can get later on. Thank you, go ahead.

Mr. APPLEGATE. Thank you very much.

Mr. Evans?

Mr. EVANS. Thank you, Mr. Chairman.

Mr. Ivers, I know you oppose this legislation because you think it creates a disparity between various categories of veterans. But in its language, in its defintion of a radiation-exposed veteran—as a veteran who, while serving on active duty during a period of war, was exposed to ionizing radiation as a result of the veterans' participation in radiation-risk activity, which is then defined as on-site participation in atmospheric detonation of a nuclear device, or the American occupation of Hiroshima and Nagasaki, Japan before July 1, 1946, isn't that a sufficiently narrow definition to include what most people consider to be atomic veterans, or if it isn't, is there another provision that should be added to further——

Mr. IVERS. That clearly identifies atomic veterans and that is not the basis for the objection to the legislation. There are approximately 220,000 veterans who participated in atomic weapons testing and approximately 240,000 who were stationed on the islands of Honshu, Kyushu, and Shikoku as occupation forces.

Mr. EVANS. 220,000.

You stated that there was official film badge data from nuclear test participants that show that fully 42 percent received no dose whatsoever, and the average for the entire group was only half a rem.

Isn't there some dispute over that particular data, though, in terms of its reliability?

Mr. IVERS. There has been continued dispute and continued questioning of the accuracy of that data, which is maintained by DNA—yes, that is correct.

Mr. EVANS. All right.

Mr. IVERS. It is disputed data, but it is the only data we have right now.

[See p. 127.]

Mr. EVANS. I guess you are saying that there is less than 1 percent that received, even with the data that we do have, doses that did exceed 5 rems which is the present annual allowable exposure for radiation workers. This would be a significant number of people that would have exceeded the annual dosage in terms of numbers, I guess, close to 2,200 people that might have exceeded that annual average allowable exposure; is that correct.

Mr. IVERS. The actual number is 1,139.

If I am not mistaken, and Dr. Graham can correct me if I am wrong, I believe that 1,139 have been identified as having received in excess of 5 rems. Out of the 220,000, 1,100 received between 5 and 25 rems of exposure and 39 have been identified as having received in excess of 25 rems. I referred to those 39 earlier, in that there is no evidence at this point of any radiogenic disease among those 39.

Mr. EVANS. All right.

Mr. Chairman, I yield back my time.

Mr. APPLEGATE. Thank you, Mr. Evans.

Mr. Bilirakis?

Mr. BILIRAKIS. Thank you, Mr. Chairman.

Not having heard the testimony and some of the answers to the questions, possibly the questions I am about to ask may already have been answered.

Is it acknowledged by everybody in the medical profession and whatnot that the lifetime risk of a death from cancer in the general population is some 16 or 17 percent—there is no dispute to that? May I ask Dr. Rowland, as far as you know, is that is an acceptable figure.

Dr. ROWLAND. No.

Mr. BILIRAKIS. During the 30 years—I will pick that magic figure that has been used by Roy in his legislation—from 1945 to 1975, is there any way to determine how many of the, I guess I will say men—I could say men and women, but maybe we will just say men—who died from these forms of cancer, may have served in the military and served in these particular zones?

Is that something that is doable or getable, or whatever the case may be? Just for purposes of maybe comparing that percentage with this 16 or 17 percent.

Mr. IVERS. You mean breaking that out of the general population or those known to have died from cancer among this population?

Mr. BILIRAKIS. From the general population I would expect, because I am sure there have been hundreds of thousands of veterans who have died from cancer who probably served in these zones and whose families perhaps never even bothered to file a claim.

Mr. IVERS. I would think it would be virtually impossible, given the inability to track after a certain point over a period of 30 years.

Mr. BILIRAKIS. There are no statistics available that would answer that for us, barring the computers, I guess.

Mr. IVERS. Not that would break that out. I believe as of 1985, DNA had identified and contacted 50,000 of these 220,000. But whether or not they would be able to go further than that, I don't know.

Mr. BILIRAKIS. I don't have any further questions, Mr. Chairman.

Mr. APPLEGATE. Thank you very much, Mr. Bilirakis.

Dr. Rowland?

Dr. ROWLAND. Thank you very much, Mr. Chairman. I thank all of you for being here today to discuss this, perhaps we will be able to more clearly understand after these hearings where we stand with reference to this very difficult problem.

I think the fact that you have given benefits to 28 people who were exposed to low does of ionizing radiation reveals the fact that you do recognize that there is a problem here that does need to be addressed, that there are people who in fact do have disease processes that have developed because of their exposure to ionizing radiation.

Mr. Ivers, I guess in reading your testimony and listening to you, you talk about the responsible manner now in which you are addressing this problem and almost by inference I feel that you think probably the legislation is irresponsible. You make a statement here that the establishment of entitlement on a presumptive basis in the case of low-level radiation exposure would substantially compromise the legitimacy of a VA's benefit program.

I want to say that by doing this in the way that you have been doing it, you are doing exactly what you are saying this legislation does. You are failing to recognize the complexity of this problem. I think the fact that you have only recognized that there are 28 people out of we don't know how many, a relatively large number, have been given benefits, is almost laughable. That there are no more than that that have been recognized.

So I think that the VA is really undermining the process that we have for compensation by not recognizing these people.

What is the feeling of the panel here today about judicial review? How does the VA feel about judicial review? I know what I have heard the VA say, but are you opposed to judicial review, or do you support it? Could you tell me?

Mr. IVERS. We are opposed to judicial review. That is a matter of substantial record.

Dr. ROWLAND. All right.

I think that by treating the veterans that have been exposed to this ionizing radiation in the manner in which you have, you are certainly giving those proponents of judicial review ammunition to move forward with that process.

If we are not able to deal with this legislatively, as you well know, there are efforts being made now to deal with it in the courts. I certainly think that we need to give that some thought and some consideration.

I want to ask Dr. Graham, the statement is made here that the bills are devoid of a basis in accepted scientific knowledge. Do you agree with that statement, Dr. Graham?

Dr. GRAHAM. I think that you would be able to find some scientific experts who would endorse adding a number of other diseases to the list of radiogenic diseases in the legislation. I think you will find other experts who would say that the low levels of ionizing radiation that are recorded here would be extremely unlikely to cause most of the diseases that you are listing as radiogenic.

Dr. ROWLAND. I take it, then, you disagree with that statement?

Dr. GRAHAM. I disagree only in the sense that certain of the listed diseases are in fact recognized as radiogenic. I also do not agree with the notion these diseases should be considered radiogenic regardless of the amount of exposure as these bills would suggest.

Dr. ROWLAND. Let's talk just a minute or two about the levels. I think that is where the problem really, really comes. Let me ask you this, Dr. Graham: The method used for detecting radiation back in the 1940's, would you agree was very crude at best?

Dr. GRAHAM. The methods used were much less sophisticated than those we use now, sir.

[Subsequently, the Veterans' Administration furnished the following additional information:]

While the methods that were employed to measure radiation were less sophisticated than those in use today, the basic principles are the same. Further, sophisticated computer modeling has verified the badge readings that were taken at the time of the weapons testing program. The lack of sophistication, therefore, does not equate with lack of reliability.

Dr. ROWLAND. When we talk about the number of rems that a person was exposed to then, it seems that we have almost got a mindset about that. Saying a person was exposed to half a rem or one rem, do you think it is possible that the methods that we use to measure the radiation then were inaccurate to the point that we really didn't know how many rems a person was exposed to?

Dr. GRAHAM. I believe it is possible that we don't know the precise figure, sir. However, the National Academy of Sciences carefully looked over the DNA dose estimates. I think their statement was that based on all the scientific evidence available to them, if anything, the DNA estimates were on the high side because of the DNA's practice that whenever there is a doubt, the veteran is presumed to have received the higher dose.

Dr. ROWLAND. What did GAO have to say about that study?

Dr. GRAHAM. About the National Academy of Sciences study?

Dr. ROWLAND. Yes, about the study, that Crossroads study.

Dr. GRAHAM. I am not aware of a GAO response to the National Academy of Sciences study. Of course, the conclusions of the National Academy of Sciences study which looked generally at DNA's method for assigning dose, were in conflict with the GAO report, whick looked only at Operation Crossroads and which indicated that GAO felt that the dose estimates were inaccurate.

Dr. ROWLAND. Okay. I think that we made my point in reverse, perhaps, then.

Dr. GRAHAM. Okay.

Dr. ROWLAND. Let me ask you another question, Dr. Graham. Do you think that familial differences could make a difference in whether or not an individual might develop a disease process after exposure to ionizing radiation?

Dr. GRAHAM. Yes, I believe they could. I am not able off the top of my head to think of any studies that have demonstrated that; but, yes, I believe they could.

Dr. ROWLAND. The fact is we are dealing with an area where there are a good many uncertainties.

Dr. GRAHAM. That is correct.

Dr. ROWLAND. I believe it is the purpose of the Veterans' Administration to give the benefit of the doubt to the veteran.

Dr. GRAHAM. I always do my best when I am reviewing a claim, yes, sir.

Dr. ROWLAND. Do you feel that the benefit of the doubt has been given to the veteran in many of these cases that have already been reviewed by the Veterans' Administration in view of some of the things that we have just mentioned?

Dr. GRAHAM. Sir, in the approximately 15 months that I have been reviewing these cases, I have only reviewed, I think, somewhere between 30 and 35. In those that I have reviewed that were denied, I believe the veteran did get the benefit of the doubt. Those where I reported my opinion that there was a relationship between exposure and a claimant's disability, certainly he got the benefit of the doubt.

Dr. ROWLAND. Mr. Chairman, my time is up. I certainly hope you will come around for another round of questioning.

Mr. APPLEGATE. With the VA, you mean?

Dr. ROWLAND. Yes, sir.

Mr. APPLEGATE. If you have another question or so, Dr. Rowland, why don't you proceed? You are the prime sponsor of the legislation. I think you have a right to that.

Dr. ROWLAND. Thank you, Mr. Chairman.

The fact is that I have a study here from the National Academy of Sciences and there is a Committee on the Biological Effects of Ionizing Radiation of the National Research Council at the National Academy of Sciences with some tables referring to the number of expected total cases above normal after exposure to low doses of ionizing radiation.

It seems that, according to these figures—that leukemia, of course, is one of the principal ones that has a rather high level—out of 100,000, they would expect, after exposure to low doses of ionizing radiation, 377 additional cases of leukemia. In the thyroid, 452 additional cases. I won't read over all of these but there are some in the gastrointestinal tract.

It seems that based on this that it has been established that there is an increased incidence of disease in cases of exposure to low doses of ionizing radiation. I think that when you take into consideration the fact that there was a crude measure of the radiation at the time of these tests and exposure, and after the occupation of Hiroshima and Nagasaki, and with familial differences, that there are many gray areas, and that individual judgment will have to be made on whether or not in fact compensation is due.

It appears to me that we really have not addressed that area in present law as we should. And that if we do not address it legislatively, that we may well find ourselves in the courts trying to address it. Principally for that reason, I think that we need to talk about this and arrive at some conclusion about just what needs to be done.

I certainly think that the position that the VA has taken is almost recalcitrant and that it needs to take a closer look at what has been taking place.

I know you know, Dr. Graham, that there are times when things are in a gray area and, you really need to give consideration other than what is given to us by inflexible guidelines.

Mr. Chairman, is that a vote?

Mr. APPLEGATE. That is all right, go ahead. We have still got a few minutes left.

Dr. ROWLAND. I certainly want to give the panel a chance to respond to any of the things that I have said here and if time permits, have a dialogue about it.

Mr. Chairman, at this time I will yield back.

Mr. APPLEGATE. Thank you, Dr. Rowland.

We would certainly appreciate the availability of the Veterans' Administration to answer questions that we will submit.

I am sure Dr. Rowland has questions and I am sure that other members and the counsel will have questions that they would want to submit. We would hope that you would reply to those as expeditiously as possible.

I would only end up by saying that I think I can understand, at least to some degree, where the Veterans' Administration does come from. However, there are a lot of unanswered questions. I certainly think that this legislation is absolutely needed for you to be able to carry on what we would like for you to do. Therefore, we hope that it can be passed so that it can make your services much easier. But I do think that the legislation we have is very important.

Mr. APPLEGATE. Let me say I am going to adjourn the committee temporarily while we go over and vote. We do have four votes, one 15-minute, and three 5-minute votes, upon which we will return and that should be by, I would say, by quarter after. I think that would do it. So we will adjourn until a quarter after.

Mr. IVERS. Thank you, Mr. Chairman.

[Recess]

Mr. BRIZZI [Subcommittee counsel]. Ladies and gentlemen, can I have your attention, please?

We are going to have to adjourn the meeting for today. It doesn't appear that the chairman is going to be back, or any of the members.

I am terribly sorry for the inconvenience but we would like for you to return tomorrow at 9 a.m., and we will continue with the National Association of Atomic Veterans first.

[Whereupon, at 4:15 p.m., the subcommittee was adjourned.]

Thursday, May 21, 1987

The subcommittee resumed its hearing, pursuant to recess, at 9:05 a.m., in room 334, Cannon House Office Building, Hon. Douglas Applegate (chairman of the subcommittee) presiding.

Present: Representatives Applegate, Rowland and Penny.

Mr. APPLEGATE. Good morning. The subcommittee will come to order, and if everybody would take their seats, we'll get started.

I have to apologize for yesterday; however, we got caught up in the Defense authorization bill in the House, ran into a series of votes; thought we would be back by about a quarter after. That was the optimistic side. Some of the old heads back here were saying, "I think that's early," and they were right. Nevertheless, we had to ask you back this morning, and unfortunately everybody cannot be back this morning. However, I think we are pretty well represented.

There is a conflict with the Senate Veterans Affairs Committee. They began hearings at 8:45 this morning. However, some of the veterans' organizations, such as the AMVETS and the American Legion, will not be here; however, they have submitted statements and, without objection, the statements will be entered into the record.

[The statements of AMVETS and the American Legion appears at pp. 180 and 183.]

Mr. APPLEGATE. Secondly, we will be combining the three remaining witnesses from the DAV, the VFW, and the PVA. They will not be first; they will be second.

We will begin, however, with the first witness, hearing the testimony from Mr. Robert Faron of the National Association of Atomic Veterans.

Welcome to the committee, Mr. Faron, and you may proceed. Your statement will be made a part of the record, and if you could sort of keep your summary within the 5-minute range, we would appreciate that.

STATEMENT OF ROBERT S. FARON, MEMBER, BOARD OF DIRECTORS, THE NATIONAL ASSOCIATION OF ATOMIC VETERANS; ACCOMPANIED BY LUCIUS SMITH, III, EXECUTIVE DIRECTOR, NATIONAL ASSOCIATION OF ATOMIC VETERANS

Mr. FARON. Thank you very much, Mr. Chairman.

My name is Robert Faron. I am a member of the Board of Directors of the National Association of Atomic Veterans.

I am joined by Mr. Lucius Smith, the Executive Director of the National Association of Atomic Veterans, who is in the audience. Mr. Smith has been a tireless worker on behalf of the Atomic Veterans, and I very much appreciate his support.

Mr. APPLEGATE. Would you care to have him come to the witness table with you?

Mr. FARON. As he prefers, Mr. Chairman.

Mr. APPLEGATE. Please. He's an old friend.

Mr. FARON. Mr. Chairman, the National Association of Atomic Veterans particularly acknowledges the introduction and vigorous sponsorship of H.R. 1811 and the hearings which are being held today. We are thankful that after 40 years, the Congress has begun

to recognize the problem facing American citizens who were exposed to military radiation and who have endured without the basic disability and compensation benefits routinely available to soldiers who have been wounded, injured or maimed in combat.

Dr. Rowland and you have been longstanding good friends of the National Association of Atomic Veterans. We have always had an open door to the offices of the Chairman, Sonny Montgomery. We welcome the support of Mr. Lane Evans, who sponsored the Atomic Veterans' Relief Act in the previous Congress, and we welcome the support of all the members of this committee who have been open and who have helped us develop our position.

The essential element of these bills, H.R. 1811, S. 453 and S. 1002, is that the passage of any one will indicate that the country will, at long last, have recognized a service connection to the injuries of Americans who have been wounded based upon exposure to radiation. H.R. 1811 and S. 453 in particular would establish by presumption a service connection to the exposure of these heroic Americans to radiation.

These bills avoid any attempt to place upon an atomic veteran the burden of proving legal causation of his injury based upon scanty evidence of exposure that is currently available and the uncertain scientific understanding of causation that exists today. This is a task which no lawyer would relish having to prove in a court of law.

Instead of litigation, these bills offer an opportunity to the veteran to utilize the resources of the Veterans Administration in seeking relief, but without the enormous burden of establishing legal proof. It is just such a burden that made litigation a dead end heretofore.

It is for just such a reason that it is important that this Congress pass a bill like H.R. 1811 in some form. It is important to recognize that the elements of basic service connection on exposure, presuming the causal effect of that exposure, and shifting the burden of proving negative causation to the Government, are important elements in establishing a compassionate response to the needs of these American service personnel.

It is also important that H.R. 1811 establishes a mechanism to provide atomic veterans a response without having to point the finger of blame at any particular entity. These soldiers are simply seeking to be awarded their benefits due under their contract that they established upon entry into service, that should they be injured or wounded during the course of their service, that they would be taken care of by the system that adequately has cared for American soldiers for many years.

Each of these Americans was involved in performing a duty based upon training as military personnel. We contend that they entered into an implied social contract upon their enlistment, that they would be treated equally with every other serviceman injured in the line of duty. These atomic soldiers responded based upon faith and trust in their country and with the knowledge and understanding that should they be injured, the systems of veterans' care would be available equally to them.

It is the purpose of this legislation to make available those benefits to these atomic soldiers. Representatives Rowland and yourself,

Mr. Chairman, Mr. Montgomery, Mr. Hammerschmidt, Mr. Solomon and Mr. McEwen, who have joined in introducing these bills, have supported our efforts. We also welcome the support of the sponsors of S. 453 and S. 1002. We are indeed pleased to see this outpouring of response in both Houses and from Members of both political persuasions who are concerned enough to address this problem. We welcome the support of the service organizations, particularly the Disabled American Veterans, and we are encouraged by the sense of understanding and cooperation generated by the Defense Nuclear Agency; this has been evidenced by a letter from General Pickitt to the National Association of Atomic Veterans, which is attached to the record.

[See p. 198.]

In conclusion, I would like to say that we support those in the House and Senate who are generally trying to break a stalemate that has gone on for more than a generation.

In Senator Simon's introductory statement he mentioned that we must start someplace. We must lay aside some individual interests in order to begin a system to provide maximum compensation for the greater number of people who can be cared for at this time. These worthy men are concentrating on the attainable rather than the ultimate. In that regard, it would be appropriate in this legislation to leave open the possibility that the Veterans Administration may be able to report that a particular disease or cancer can or cannot be linked to exposure to radiation, and we urge that this report be included in any final legislation.

We have in our written statement expressed some concerns with the elements of the bills that we do not see accomplishing our ultimate goal of fair compensation. Certain additional cancers may be included; the time frame of a 30-year manifestation may be examined to be extended, perhaps to 40 years, or perhaps to an unlimited period. An actuarial time clock is ticking for the older veterans of atomic exposure during World War II who may not be able to benefit from the results of this bill if its spirit is not carried out in its implementation.

We don't see the need to terminate a bill that's been hard-fought after 3 years, as some of the other measures suggest, because the system may not be implemented by the end of a 3-year period.

I have mentioned in my written statement a personal experience. My father was exposed during his performance as an aircrew member during Operation Sandstone. He is suffering effects, we believe, that may well be related to his radiation exposure during that period. We are pleased that he has been responding to medication and treatment.

But we believe that the United States must keep its implied social contracts with its veterans, such as my dad and other atomic veterans, so that this country can state to its citizens now and in the future that it will care for those who care for it.

Mr. Chairman, we are extremely pleased with the introduction of this bill, and we hope that you will work toward its speedy passage. For the first time since the invention of the atomic bomb, the representatives of all parties and interests are talking. Whatever proposal is arrived at as a result of this hearing and in the Senate, the National Association of Atomic Veterans is proud of the leadership

shown by the majority and ranking minority members of both the House and Senate Veterans' Affairs Committees and the other members who have joined in your efforts and the efforts of others to sponsor or cosponsor this legislation.

Thank you very much.

[The prepared statement of Mr. Faron appears on p. 189.]

Mr. APPLEGATE. Thank you very much for your statement.

I would agree. I think we all have a purpose here and an agreement that we hope and pray to God that we never have any other people that will ever be exposed to the dangers of ionizing radiation, particularly from the testing, the outside testing, the aboveground testing, or in actual warfare, that we have to face those kinds of things in the future.

Let me ask you this on the three bills. You had talked about the three bills, and you say that you support all of them, perhaps with a reservation with the Cranston bill because of the sunset provision in it. Do you give your strong support to H.R. 1811?

Is that what you're saying?

Mr. FARON. Yes, sir. We believe that the approach of H.R. 1811 is simple and straightforward and responds to the needs of the veterans, and becomes a point to start looking at a system that will implement the spirit of H.R. 1811 as the claims that are recognized and reviewed by the Veterans Administration are addressed. We think that the spirit of H.R. 1811 will provide a basis for the Veterans Administration to proceed with the immediate, and then work up to what we would hope to be an ultimate solution to all atomic veterans' problems.

Mr. APPLEGATE. Obviously, I agree. I think it's a very practical approach, and it does provide a vehicle. I think it provides answers to the immediate needs. Then we can look and see what happens in the future.

Mr. APPLEGATE. I have no further questions. Mr. McEwen will not be here for a while; he's going to try to make it a little bit later on. He does not have an opening statement but he does have some questions that he would like to submit, so he will be submitting those questions and we'll ask for answers to them.

Mr. FARON. We'll be pleased to provide written responses for the record as he asks for them.

Mr. APPLEGATE. And we may also have some additional questions that we will ask responses to, and we will send those to you.

Mr. APPLEGATE. We have with us, of course, the very distinguished author of the bill, Dr. Rowland.

STATEMENT OF HON. J. ROY ROWLAND, A U.S. REPRESENTATIVE FROM THE STATE OF GEORGIA

Dr. ROWLAND. Thank you very much, Mr. Chairman.

Yesterday was a difficult day at best, I guess, to have a hearing, with all the votes we were having on the floor, so I want to express to you my very sincere appreciation for the manner in which you handled our difficulty yesterday afternoon and for coming back this morning and giving the opportunity to those who had not testified that privilege.

I just have a feeling of great sensitivity and understanding for the frustration that the atomic veterans have had over the years in trying to get some recognition, and I find it odd that the VA has taken the position that they have taken. I think the tenor of the testimony yesterday from the VA reveals the very inflexible position that they have taken in this, and it's difficult for me to understand that.

This is an area that has a lot of gray in it. They seem to be saying it's a black and white area, although they do admit that there's a problem since there are 28 veterans who have received compensation. I'm going to be interested in talking with the VA to learn what kind of cases they were, how they made their determinations, and how they have managed to not make favorable determination on so many veterans who I think justly deserve to be compensated for the services that they gave to their country.

So I will look forward to hearing the testimony from the other witnesses. I appreciate those of you who are back here this morning to give your testimony.

And as I indicated yesterday, you have to start somewhere, and this bill is a beginning. I think many veterans who were exposed to radiation other than the atomic veterans have to be given consideration, as well as the disease processes that are caused by low-level ionizing radiation that we have to look at also.

Mr. Chairman, thank you very much for continuing this hearing this morning.

Mr. APPLEGATE. Thank you very much, Dr. Rowland, and thank you very much, Mr. Faron, for appearing before the committee. We appreciate your presence and we'll be looking forward to working with you on the balance of this bill.

Mr. FARON. It's been an honor and a privilege, Mr. Chairman. Thank you.

Dr. ROWLAND. Thank you, Mr. Chairman.

Mr. APPLEGATE. Thank you, too.

The next will be a panel, and we'll have Mr. Rick Heilman, National Legislative Director of the DAV; Mr. Bob Moran, the Associate Legislative Director of the PVA; and Mr. Dennis Cullinan, Assistant Director of the Veterans of Foreign Wars.

Gentlemen, if you drew straws or flipped a coin, please proceed.

STATEMENT OF JOHN F. HEILMAN, NATIONAL LEGISLATIVE DIRECTOR, DISABLED AMERICAN VETERANS

Mr. HEILMAN. Thank you, Mr. Chairman. Good morning, Dr. Rowland and counsel. I will summarize my remarks.

First I do want to thank you, Chairman Applegate, and of course, Mr. McEwen, for calling these hearings. We appreciate the fact that you've decided to give consideration to this issue. And, of course, our thanks and appreciation go to Dr. Rowland and to Mr. Hammerschmidt, who have been long-time advocates on behalf of atomic veterans and responsible for the focus that has been maintained, in large part, here in the Congress on this issue.

Mr. Chairman, the path of atomic veterans in terms of establishing their benefit entitlement before the VA has been an arduous one and a complex one, especially in terms of their entitlement to

service-connected disability and death compensation benefits. At the heart of the dilemma, as has been apparent by the testimony that was given this morning, is the fact that under current law and regulation by which the VA must abide and which has its genesis here in the Congress, these veterans, given the fact that the scientific community is unable to definitively state that low-level exposure to ionizing radiation will lead to the subsequent development of any condition, and also the unreliable and inaccurate dose estimates that have been provided by DNA—given these factors, atomic veterans have not been able to prove a cause and effect relationship. Unlike the vast bulk of other VA claimants who apply for service-connected benefits, their disabilities have become manifest years after service. They simply cannot look into the service medical records and provide evidence that the disability had its onset in service.

So they have been stalemated for years and years because of this dilemma, and it's time for redress to be provided to them in the fashion of the pending legislation.

Other avenues have been explored, and they continue to be explored, and we're aware of litigation out in California—the *NARS* v. *Turnage* case, the efforts to repeal or modify the Warner amendment, and also efforts to authorize judicial review of all VA benefit determinations, including atomic veterans, in the Federal District Court system.

But we in the DAV would say, regarding these avenues of redress, that we don't believe they would provide, even if they were to be realized, meaningful assistance to atomic veterans because the right to hire an attorney or to sue the Government or to sue the contractors who developed the nuclear devices would still leave them with the problem of proving this cause and effect relationship. And we believe that they would end up with time-consuming, costly litigation in pursuing these avenues that, at best, would be inconclusive in terms of results. And the possibility of them ever securing meaningful compensation would be very remote.

So we applaud the legislation that's pending before the subcommittee today and we think that modification of law, which is what we're talking about here, is the best way to help atomic veterans.

The three bills, Dr. Rowland's bill and Senator Murkowski's and Senator Cranston's, contain differences. They range from the specific conditions that would be authorized for payments to some differences in the manifestation periods; S. 1002 has a provision that would allow for payment of 50 percent of the dollar. These differences are substantial and obviously have to be resolved. And looming behind the decisions on how you reconcile these differences is the dollar factor. But nevertheless, all the bills have a fundamental, basic approach that is quite in common, and that is the modification of Title 38 to recognize that these veterans were exposed and that there are conditions that very likely were caused by exposure. The bills would direct the VA, given conditions that are met, to pay the benefits.

So we think this is the best way to go. And as you can tell by the tenor of our statement, we haven't addressed these differences per se. We're willing to discuss that this morning, or later if you wish, but we're confident that the two committees can resolve the differ-

ences contained in the proposals and come up with a measure that's acceptable to the entire Congress.

[The prepared statement of Mr. Heilman appears at p. 199.]

Mr. APPLEGATE. Thank you very much, Rick. I appreciate those remarks.

Bob?

STATEMENT OF BOB MORAN, ASSOCIATE LEGISLATIVE DIRECTOR, PARALYZED VETERANS OF AMERICA

Thank you, Mr. Chairman. I would like to associate my remarks with those of Mr. Heilman from DAV. I think PVA is in complete agreement.

I would just like to say on behalf of PVA, it is a pleasure to be here and to testify.

The three bills being discussed, H.R. 1811, S., 453, and S. 1002, would establish presumptions of service connection relating to certain specified diseases suffered by veterans who have been exposed to ionizing radiation during the American occupation of Hiroshima and Nagasaki, and during the atmospheric testing of nuclear weapons.

The legislation being addressed, and any actions taken hereafter by this subcommittee or the full committee or Congress, PVA believes will be a much-needed and deserved approach in resolving the problems, the considerable scientific uncertainty surrounding the issue of atomic veterans, and the adjudication of their VA claims.

PVA supports the intent of the legislation and commends the subcommittee in moving forward on this most important and complex issue in trying to provide and achieve a fair and equitable means of providing for this deserving segment of our veteran population.

Additionally, PVA hopes that the scientific community will continue to aggressively pursue its investigation into the linkage between radiation exposure and possible adverse health effects.

This concludes my statement. Thank you.

[The prepared statement of Mr. Moran appears at p. 206.]

Mr. APPLEGATE. Thank you very much, Bob.

Mr. Cullinan?

STATEMENT OF DENNIS M. CULLINAN, ASSISTANT DIRECTOR, NATIONAL LEGISLATIVE SERVICE, VETERANS OF FOREIGN WARS OF THE UNITED STATES

Mr. CULLINAN. Thank you, Mr. Chairman. I'd like to thank you on behalf of the entire membership of the Veterans of Foreign Wars for allowing us this opportunity to testify with respect to H.R. 1811, S. 453 and S. 1002.

In light of the VFW's long-standing commitment to see the problems of this Nation's atomic veterans addressed in a fair and compassionate manner, we are both pleased and gratified with the introduction of these three measures which provide for compensating veterans and the survivors of veterans who are suffering from or who have died from certain disabilities due to their radiation exposure.

The first bill under consideration, H.R. 1811, the Atomic Veterans Compensation Act of 1987, introduced by Dr. Rowland of this committee, along with its chairman, G. V. (Sonny) Montgomery and the ranking minority member, Gerald Solomon, as well as yourself, sir, and Messrs. Hammerschmidt and McEwen, would add additional diseases to the list of presumptive disorders for radiation-exposed veterans. These diseases are leukemia, except chronic lymphatic leukemia; polycythemia vera; thyroid cancer; bronchogenic carcinoma; and, as was decided yesterday, breast cancer for both male or female, all of which must become manifest to a degree of 10 percent or more within 30 years of the veteran's last exposure.

The VFW supports this bill, establishing the aforementioned diseases as presumptive disabilities. However, we would favor allowing this presumption to all of this Nation's atomic veterans, including those who suffered their radiation exposure while on active duty during peacetime.

Furthermore, we would recommend eliminating the 30-year limit by which time a given disease must become manifest.

When a veteran's disability is incidental to his service in the U.S. military, he should not be prevented from receiving VA compensation.

The remaining two measures under consideration today, S. 453 and S. 1002, are similar in intent, so we will address them both collectively and individually.

Under S. 453, veterans who were exposed to ionizing radiation as a result of their participation in atmospheric nuclear testing programs or the occupation of Hiroshima or Nagasaki shall be presumed to have service-connected disabilities if they suffer from or die as a result of leukemia, except, once again, chronic lymphatic leukemia, becoming manifest within 30 years after the last date of the veteran's exposure to radiation. Also, liver cancer becoming manifest 5 or more years after the last date of such exposure, and multiple myeloma, or cancer of the bone marrow, also becoming manifest 5 or more years after the veteran's exposure.

We strongly support adding these diseases to the VA's list of presumptive disabilities, and would only recommend, once again, that the 30-year limit for the manifestation for the various forms of leukemia be eliminated.

Another provision of S. 453 would require that for the purpose of adjudicating claims for VA benefits, veterans' exposure estimates as reported or reconstructed by the DNA would be doubled. In our view, requiring the VA to double the dose estimates as reported by the DNA is certainly justified, and if anything, it should be viewed as a rather conservative adjustment. We would point out, however, it does not help those for whom there is no known exposure level, or who are not able to establish their presence at a given test site. We shall have more to say on this issue when we address S. 1002.

The final bill under consideration, S. 1002, would establish a new chapter under 38 U.S.C. which will establish a separate category or group of presumptive disorders for radiation survivors which would be paid at a rate either equal to that provided in chapter 11 or 13 of Title 38, or at a rate of 50 percent of such compensation.

The first provision of S. 1002 would provide disability and death payments to radiation-exposed veterans for cancer of the thyroid when manifest 5 or more years after exposure, and leukemia manifest within 30 years after such exposure. The VFW, once again, certainly agrees that these disabilities should be compensated; however, we would prefer that they be treated as a regular VA compensation rather than as a separate category. Presumptive disorders are already particular in nature, such as those that exist for former POW's and for veterans who have served in jungle campaigns, and we see no reason why radiation-exposed veterans should be held apart.

The bill's second major provision would provide for two categories of disabilities to be paid at two different rates. Cancer of the thyroid manifested 5 or more years after radiation exposure, and leukemia when manifested within 30 years, would be paid at the full Title 38 rates. Cancers of the colon; small intestine; stomach; liver, except where cirrhosis or hepatitis B is indicated; bile ducts; gallbladder; pancreas; lymphomas, excluding Hodgkin's disease; and multiple myeloma would be paid at 50 percent of the Title 38 rates.

The VFW is of the opinion that if a given disability is associated with a veteran's service-related radiation exposure, then that disability should be paid at the full rate of compensation.

Once again, we also believe that these veterans should receive regular VA compensation and not be held apart in a well-intended, yet ill-advised, adjudicative ghetto.

The VFW favors another major provision of S. 1002 which would require the VA to give special consideration to the adjudication of claims for diseases which only have a weak association with radiation exposure.

Another provision, using a different method but a similar intent to the provisions contained in S. 453, would require that the DNA radiation exposure estimates be adjusted upwards. This recalculation would be based on the estimated amount of radiation exposure received by members of the veteran's branch of service in the nuclear weapons testing operation in which he participated, or the estimated exposure received by participants in all branches of service in that operation, whichever is more favorable for the veteran.

Certainly, the VFW favors upwardly adjusting the often severely-underestimated DNA exposure estimates of this Nation's atomic veterans. One advantage to S. 1002's method is that those veterans with no record of their radiation exposure, or who cannot establish their presence at a given test site, would at least be given the chance to establish their entitlement to a service-connected claim for radiation-related disability through the records of their fellow participants.

Doubling the DNA exposure estimate, as provided in S. 453, on the other hand, enjoys the advantage of uniformity and simplicity, as well as allowing for more accurate upward adjustment for those veterans whose exposure estimate is moderately high. The VFW would therefore favor coupling these methodologies, at the very least allowing whichever of these two means of recalculating exposure is most in a given veteran's favor to be utilized. This would not, of course, constitute a perfect solution, but nonetheless would

make a valuable contribution toward redressing a grievous injustice.

Mr. Chairman, this concludes my statement, and I thank you.

[The prepared statement of Mr. Cullinan appears at p. 209.]

Mr. APPLEGATE. Thank you very much, Mr. Cullinan.

Just one thing. To sort of get an opinion, I think you all agree that H.R. 1811 seems to be a good approach to what it is that we're trying to do, but taking a look at the Cranston bill, S. 1002, I am a little bit concerned with a couple of the provisions in the bill. First of all, they have a time limit of September 30, 1990; although, if you look at the various diseases, you have leukemia, 30 years; thyroid, 5 years or more—which I understand now is 1 year; you have to develop it within 1 year. Under this bill, as I read it, if you develop it within one through 4 years you wouldn't be eligible, but you would after 5 years or longer. And the others that they list in here, there's no time limit at all, so it really doesn't fit in with the sunset provisions that they have in that bill.

But I guess what I'm asking you, too, about that—I think I could understand what you would say there—but as to the one-half, or fifty cents on the dollar, compensation that they want to pay on this whole rash of diseases that they have—and they have them at all different kinds of periods. They have special considerations. It's like an all-star team; they have the first team and the second team. They have leukemia and thyroid, which is 100 percent; they have half a rate for about eight or nine others, and then special consideration for a group of them.

How do you even look at a bill like that? How would one even think it could be administered very properly?

Mr. HEILMAN. Mr. Chairman, you're right. S. 1002 has set forth these three categories of conditions.

When you look at all three measures collectively—Dr. Rowland's bill, S. 453, and the first category, if you will, in S. 1002—leukemia is named by all three bills and thyroid cancer is named by two of the bills. And then the other conditions vary. But the focus is on eight conditions, and I guess recognizing the difficulty that the subcommittee is faced with in terms of actually choosing which radiogenic conditions you're going to put your finger on for payment, my suggestion would be to focus on those eight conditions that the bills specifically mention for payment as a starting place.

Certainly, with regard to the S. 1002 provision which would not receive applications beyond September 30, 1990, I don't think that's a good idea. Of course, Senator Cranston, I believe, associates that date with a mortality study that's due about that time, the implication being, I guess, that the extension of the measure would be considered—if it were enacted into law, the extension would be considered at that time.

But we're dealing with a closed universe here, 200,000 or whatever veterans that we're talking about. If the committees of Congress are going to make the basic decision to authorize these payments in view of the unique circumstance of exposure, then I don't see any sense, really, to sunsetting receipt of applications. It doesn't make any sense to me.

Mr. MORAN. Yes. PVA would agree with Mr. Heilman's assessment. All three bills include leukemia. Two of the bills, as Rick

said, include thyroid cancer. I understand that the committee staff on the Senate side with Murkowski, as far as S. 453 is concerned, has received considerable letters and questions and concerns as far as the exclusion of thyroid cancer. So I think we need to, as Rick said, maybe zero in on specific diseases. We don't like the method of payment under S. 1002.

Mr. CULLINAN. Mr. Chairman, to respond to your question——

Mr. APPLEGATE. Sure. Go right ahead, Mr. Cullinan.

Mr. CULLINAN. First of all, the VFW would oppose the multi-tiered or the bi-tiered provision as contained in S. 1002 for two reasons. First of all, it would be an administrative nightmare, or at least that's what we foresee, but a more fundamental concern would be with the fact that this would give the appearance that the 50 percent rate was some form of gratuity rather than a legitimate compensation. And in fact, it would be held apart under Title 38, and we would object to this. Since these disabilities are linked with radiation exposure incidental to service, then they should be paid as compensation at the full rate.

With respect to the special consideration afforded certain veterans who would have diseases with only a very weak association with radiation exposure, we would interpret this as being an expansion on providing the veteran reasonable doubt, and we would support this. Of course, it may be later determined that some of these diseases have a stronger association with radiation exposure and should be made part of the regular compensation package.

Mr. APPLEGATE. I might just ask Rick and Bob, because I think Mr. Cullinan has addressed this, about their views on the Senate provisions that would double or triple the dose estimates provided by DNA.

Mr. HEILMAN. Of course, we appreciate the motivation behind this proposal. All bills can't deal with all the radiogenic conditions. We're dealing with finite Federal dollars. Two of the measures, S. 453 and S. 1002, have these provisions that would allow for special consideration in the adjudication of claims, doubling the dose estimates or the formulas contained in the Senate bill. But given our experience with our national service officers over the years in representing radiation claimants before the VA, and as already stated, the VA being constrained by the causation requirement and the dose estimates such as they are that they've received from the Pentagon and DNA, I really don't see that these types of things, if initiated, having a significant impact on the decisions of VA rating authorities throughout the country. If you've got a veteran with an official dose estimate of 0.5 or 1 or 2 and you double that, or you give him an additional 5 rems or 3 rems or 1 rem, I really don't see that impacting in terms of allowed decisions by VA if they're going to consider these claims aside from the presumptions that might be authorized, if they're going to consider these claims as they have in the past in terms of causation.

So I guess in essence my answer is that I applaud the intent, but I'm doubtful as to meaningful results.

Mr. MORAN. Yes, Mr. Chairman. Again, I would agree with that. I think the intent or the approach is admirable, but I feel that if we have specific diseases, there is a probable or a more than probable cause as far as the exposure, and we should then have the pre-

sumption. The uncertainty on the measurement of the radiation—I just don't feel that it's warranted.

Mr. APPLEGATE. Do you have anything further on that? I think you've addressed it.

Mr. CULLINAN. I believe so. I could elaborate just briefly. It was our reading of the bill that by doubling the exposure estimates, it wouldn't have an effect so much on the list of presumptive disabilities, but rather on those disabilities which are not listed as presumptive disorders under Title 38; and therefore this doubling, or using the methodology employed in Senator Cranston's bill, would help at least some veterans who have a record of exposure and would establish the warranting of service connection for those disabilities.

Mr. APPLEGATE. Thank you.

Mr. Rowland?

Dr. ROWLAND. Thank you, Mr. Chairman.

It has already been touched on here, but I think the sticking point is the amount of exposure that a veteran had, and it was at best very crudely measured by the badges that they wore then. And I think that was admitted here yesterday by the VA, that it was a very crude measurement.

I think we really need to pursue that so that those who are making the judgments won't say, well, he was exposed by 0.5 rem or 1 rem when actually that was not the case at all, so I think we need to get that particular aspect of it resolved.

I won't try to dissect these Senate bills here, Mr. Chairman, but I will make one comment about S. 1002 paying at one-half of the rate. I recall one time I had a patient that came to see me and told me she thought she was a little bit pregnant. You can't be a little bit pregnant. You're either pregnant or you're not pregnant, and if the decision is made that the disease you got was caused by ionizing radiation, you don't have it half way. You've got it all the way.

So I think that that one-half rate—I suppose they did that for fiscal considerations, but I think that's a little bit absurd.

I just want to thank all of you for coming and supporting this legislation. I do appreciate it very much and we'll all work together to see if we can't move it forward, along with the Chairman and the rest of this subcommittee.

Mr. APPLEGATE. Thank you, Mr. Rowland.

We've had Mr. Penny from Minnesota join us. Tim, do you have anything you'd like to say at this time?

Mr. PENNY. Mr. Chairman, I'm a co-sponsor of the bill, and I appreciate the witnesses appearing this morning. I don't have any questions.

Mr. APPLEGATE. Okay.

Well, gentlemen, thank you very much for coming before the committee and we'll look forward to analyzing your testimony and we hope that it will help us to develop the best possible piece of legislation that we can put out. Thank you very much.

The last individual that we will have this morning is Mr. Ed Fenton, vice president and director of the South Central Region, National Association of Radiation Survivors.

Welcome to the committee, and you may proceed as you wish.

STATEMENT OF EDWARD VICTOR FENTON, VICE PRESIDENT AND DIRECTOR, SOUTH CENTRAL REGION, NATIONAL ASSOCIATION OF RADIATION SURVIVORS; ACCOMPANIED BY: DOROTHY LEGARRETA, ADMINISTRATIVE DIRECTOR

Mr. FENTON. Good morning, Mr. Chairman, Congressmen and guests. I appreciate this opportunity to come before you. This is the first time I have ever been before Congress and a committee, and I want you to know that I consider this an honor.

My name is Edward Victor Fenton. Due to my exposure to radiation I call myself an atomic veteran. I am also the vice president, National Association of Radiation Survivors.

If I was injured in combat and lost an arm or leg, I would not in any way be in this position I find myself in, today. The VA would have immediately taken care of me and awarded a pension and compensation that would rightfully be mine. However, on November 1st and November 16th, 1952, I was aboard the USS *Rendova,* CVE-114—that's an escort carrier—and I was immediately injured, and 2 months later placed in the Corona Hospital in California due to radiation illness.

All of this is documented in my Navy medical records. Due to a secrecy oath and my medical records being of an unclassified nature, they wrote "influenza, cause unknown" instead of "radiation illness." I could in no way mention radiation. I was forbidden. I was threatened. They told me I would go to the naval prison, and they told me I would be fined $10,000. I was threatened. I signed that oath under armed guard aboard ship.

Disabilities in my medical records are urticaria and pruritis, which are hives. Urticaria and pruritis are the names of what they would call hives. Immediately after that, within 2 days, I had erythemia. This is a reddening of the skin; this appeared mostly on my exposed extremities. Out there we wore T-shirts and cut-off dungarees. So only on my extremities did I have what appeared to be a sunburn.

I also came down with bronchitis in 2 weeks. My symptoms of illness are classical ones of radiation sickness, if you would document all of the symptoms that I had that led up to my hospitalization.

Today I have most of these problems, but they have now become chronic. I also have latent disabilities that appeared in later years, one of which is cataracts on both eyes. My left eye is almost gone; I'm almost completely blind in my left eye. I can't read with it. The right one is slowly going.

My Social Security disability was awarded for multiple disabilities. I live at a poverty level, you might say. I have been denied non-service-connected disability and service-connected disability by the VA, which to me is ridiculous.

I would like to pass these pictures out to you.

[Pictures passed out to subcommittee members.]

Mr. FENTON. The first picture you see is a 500-kiloton weapon. That was an aerial burst during Operation Ivy at Eniwetok Atoll. We were approximately 10 to 12 miles from that burst. We had been out further, but we were sailing back in.

In the first picture, the fireball is King—that's the name of it—and this is the largest atom bomb detonated.

It was equivalent to 500,000 tons of TNT. That's Mike; the other one, the fireball, is King. King was an atom bomb. It takes the atom bomb to set off the hydrogen bomb.

The second one, the cloud, mostly, called Mike, was the world's first hydrogen bomb. This bomb originally was supposed to be 3 megatons. Just like all of Lawrence Livermore's creations, it didn't do what it was supposed to do. It went almost triple. It's documented in the World Book Encyclopedia at 14 megatons; however, now through some visual optical process, the Navy goes through, and they've got it down to 10.4 megatons. And 10.4 megatons means that that bomb, Mike, the world's first hydrogen bomb that got out of control, was equivalent to 10,400,000 tons of TNT. In all of World War II they only dropped 3 million tons of TNT on Germany, so what you're looking at is really fantastic. The scientists were shocked.

Upon detonation, Mike vaporized a small island. A hole in the seafloor remains, 169 feet deep, and it's 6300 feet wide. It's big enough to place 14 buildings the size of the Pentagon in this hole.

At Operation Crossroads in 1946 they had small atom bombs. On our Operation Ivy, they were bigger. Mike was probably 1,500 times bigger than what they had at Crossroads, and at Crossroads they were using leftover bombs that were supposed to have been dropped on Japan if they hadn't surrendered.

There is no way that Mike can be compared to Crossroads. We had approximately 1,500 times more radiation; with both bombs, probably 2,000 times. There were two bursts on Operation Ivy. The first was Mike (Hydrogen) on November 1st, and the second was King (Atomic) on November 16th. We went out to sea on both those days, and immediately we came back in to the lagoon.

Eniwetok is a circle of islands. You might say it's the rim of a volcano. This is a way to describe them, but from one side of that lagoon to the other is approximately 23 to 25 miles. The fireball on Mike was 4 miles wide. The stem of this bomb was 18 miles wide, and they tell me I didn't get any radiation out there, and they let me go ashore on radioactive island. Not only radioactive from Mike and King, but radioactive from previous tests. Therefore much larger doses were had at Operation Ivy.

Using Crossroads as a model is insane when you get into super bombs or hydrogen bombs.

My disabilities are non-cancerous; however, they are still radiogenic. Another illness is DJD, which is degenerative joint disease. I've had this since I was age 37.

My cataracts appeared about age 50.

Today the Navy Nuclear Test Personnel Review and the Defense Nuclear Agency are using studies such as BEIR-3 of 1980—this is the Biological Effects of Ionizing Radiation—and they're using United Nations studies, the United Nations Council on the Effects of Atomic Radiation studies. They use these studies to evaluate the veterans.

All the health and dose information that was sent to the VA from the DNA or the Navy Nuclear Test Personnel Review was derived from these studies. BEIR-3, 1980, is invalid since 1981. I have

documented that in some evidence here. If the information that the NNTPR forwarded to the VA is derived from these studies, then the information that the Navy Nuclear Test Personnel Review gave to the VA is also invalid or flawed.

Director Paul F. Sitton of the National Academy of Sciences also quoted this same study, BEIR-3, 1980, which is invalid, to my Congressman, Floyd Spence. This, in my opinion, is rather stupid since the study is invalid. This is not appropriate. I offer my letter to Congressman Spence to be made a part of the record.

Mr. APPLEGATE. I'm sorry, sir. What was it you requested? That this be made a part of the record?

Mr. FENTON. Yes. That is my letter to Congressman Spence. It involves about six other letters, one to Director Sitton; one to Navy NPTR, and one to DNA, Marvin Atkins.

Mr. APPLEGATE. You want all of this——

Mr. FENTON. All of that to go in. Actually, that's all one letter; the rest of it is enclosures to that letter.

Mr. APPLEGATE. Well, according to counsel, we will have that made as part of the committee file as opposed to the record, but it will be on file.

Mr. FENTON. I think probably that that might be on file. I forwarded that to Chairman Sonny Montgomery.

Mr. APPLEGATE. Oh. Yes. It can be referenced in the record, Mr. Fenton.

Mr. FENTON. I also offer "Irradiation of Personnel During Operation Crossroads," which is an evaluation based on official documents. This man was the safety officer at Crossroads, Colonel Warren, and he left these documents to the library of the University of California. Colonel Warren and others who were there, in their evaluation, completely differ in their observations of what went on at Crossroads. They were there. The people who are evaluating us weren't there; they didn't know what was going on. So I would like to make this a matter of record, too. I think it was brought out in previous hearings in earlier years.

But I would like to say that this document proves that the Navy Nuclear Test Personnel Review and the Defense Nuclear Agency are lying to the veterans, and for that matter the National Academy of Sciences, who are well known for their close relationship to the DOD. They're going along with them.

I don't appreciate that.

I offer a letter from Dr. Karl Z. Morgan. Dr. Morgan is worldwide known—he was the Director, Health Physics Division, Oak Ridge National Laboratory for 29 years. Dr. Morgan left—I feel, in my opinion—"he left Oak Ridge due to the fact that he wouldn't be intimidated by the Department of Defense", and he's been teaching nuclear physics at Georgia Tech and is being used as a consultant. I think he was used as a consultant at Three Mile Island. He was director of the investigating board at Three Mile Island. I admire Dr. Morgan. He's a friend of mine. But I would like to offer this, "Fenton's letter from Morgan", and in this letter that he gave me he states that I am service-connected, and that I got between 10 and 100 rems of gamma and between 100 and 300 rems of beta.

Mr. APPLEGATE. Mr. Fenton, let me just say this as a matter of time, because we'll be going into session. If you could more or less

summarize your ending. We do have your full testimony, which will be made a part of the record.

Mr. FENTON. Okay. I would like to make these other documents that I have here a part of the record.

Mr. APPLEGATE. Okay. We will, again, place those in the file and refer to them.

Mr. FENTON. All right. I appreciate that.

Could I say, in closing, one thing? We feel that the DOD and DOE and others are hiding research on radiation, non-cancerous disabilities. They are numerous, just as the cancerous ones are. Many veterans are dead. Atomic widows live in poverty. This is a sin and a crime. I've got a lot of veterans in my particular territory that have genetic problems. In a survey, 20 percent of the veterans had genetic problems.

I would like to close by saying that we favor the Cranston bill, S. 1002, with 100 percent disability, but we feel that this is only an eighth of a loaf. Please investigate and give consideration to other disabilities. They are needed, and they are documented if you can look and find them.

I thank you very much.

[The prepared statement of Mr. Fenton appears on p. 213.]

Mr. APPLEGATE. Thank you very much, Mr. Fenton. I appreciate your testimony.

I have no questions at this particular moment, and I would yield to Dr. Rowland.

Dr. ROWLAND. I do thank you very much for being here this morning and presenting your testimony. I have no questions, Mr. Chairman.

Mr. APPLEGATE. Mr. Penny?

Mr. PENNY. Thank you, Mr. Chairman.

Mr. Fenton, I appreciate your testimony. I think it's important that our committee hear from soldiers who were actually located in and near some of these tests, and I want to again assure you that there are a number of us on the committee that want to see these issues addressed. The intent of the bill that we are considering is to make it clear that there are certain health problems we feel ought to be recognized as being related to exposure to atomic radiation. A good friend of mine from Albert Lea, Minnesota, Russell Dan, has been a leader in the Association of Atomic Veterans, so I can tell you that I'm quite familiar with the issue and I have been an advocate on your behalf since coming to Congress. I trust that we can, at least in some degree, address the compensation and health benefit needs of these veterans with the legislation that's under consideration.

Mr. APPLEGATE. Thank you very much, Mr. Penny.

As a matter of fact, I do have a couple of questions here that I'd like to throw at you, Mr. Fenton.

You stated, in looking at your testimony, that you think that H.R. 1811 is so inadequate that it's unacceptable. Are you saying, then, that you do not support H.R. 1811?

Mr. FENTON. Sorry?

Mr. APPLEGATE. That is the House bill. That is Dr. Rowland's bill.

Mr. FENTON. Well, we would go along with anything that you would give us. It's been so long and the veterans are hurting. We would take anything and thank you.

Mr. APPLEGATE. Well, it's important that we know whether you and your organization are giving us some support.

Mr. FENTON. Well, we would support that.

Mr. APPLEGATE. Let me ask you this. How large is your membership, Mr. Fenton?

Mr. FENTON. Sir?

Mr. APPLEGATE. How large is your membership? Let me ask you this. How many veterans comprise the makeup of your organization?

Ms. LEGARRETA. I have the computer in our office, so I do know the data that Mr. Fenton is not familiar with. We have approximately what we consider 6,000 members. Of those members, over 90 percent are atomic veterans. Others are survivors like myself who worked in the laboratories or downwinders or other civilian survivors of radiation. However, the bulk of our membership is atomic veterans.

Mr. APPLEGATE. You were a civilian?

Ms. LEGARRETA. I worked on the Manhattan Project, sir.

Mr. APPLEGATE. I see. Okay. All right. Thank you very much.

Ms. LEGARRETA. I do want to comment. I'm very pleased with the open attitude of Dr. Rowland on this bill. I think I speak for a large number of our members who feel that research is coming in all the time. The Hiroshima/Nagasaki data, there will be new data on the neutron doses, and they're going to have to recalculate the health effects of the Hiroshima/Nagasaki bombs. And we urge that markup on any bill that comes out of the committee be delayed until the new Hiroshima/Nagasaki data comes out. That should be in early July.

And finally, we're very anxious that cataracts be added at less than 50 rads. That's one of the most common symptoms of our membership after they reach the age of about 45.

Mr. APPLEGATE. Thank you, Ms. Legarreta, for your comments. They certainly will be taken into consideration. And—is it Ms. or Mrs. ———

Ms. LEGARRETA. It's Doctor.

Mr. APPLEGATE. Dr. Legarreta, thank you very much for appearing before the committee.

Last, I'd like to note that the chairman of the full committee, Sonny Montgomery, has asked permission to have inserted in the record three documents—two letters and one newspaper article—on this issue.

[The materials referred to appear at pp. 220 and 223.]

Mr. APPLEGATE. Also, I would note that the Administrator's Advisory Committee on Environmental Hazards has submitted its written views on the three bills for the record. Unfortunately, we didn't receive those until yesterday afternoon, and therefore will have to read them and make a determination as to whether we want to submit questions, which we probably will at that time.

[The material referred to appears at p. 223.]

Mr. APPLEGATE. That concludes the hearing, ladies and gentlemen. Thank you very much for being here and showing your interest.

[Whereupon, at 10:08 a.m., the subcommittee was adjourned.]

APPENDIX

100TH CONGRESS
1ST SESSION

H. R. 1811

To amend title 38, United States Code, to provide certain benefits to veterans and survivors of veterans who participated in atmospheric nuclear tests or the occupation of Hiroshima and Nagasaki and who suffer from diseases that may be attributable to low levels of ionizing radiation.

IN THE HOUSE OF REPRESENTATIVES

MARCH 25, 1987

Mr. ROWLAND of Georgia (for himself, Mr. HAMMERSCHMIDT, Mr. MONTGOMERY, Mr. SOLOMON, Mr. APPLEGATE, and Mr. MCEWEN) introduced the following bill; which was referred to the Committee on Veterans' Affairs

---

A BILL

To amend title 38, United States Code, to provide certain benefits to veterans and survivors of veterans who participated in atmospheric nuclear tests or the occupation of Hiroshima and Nagasaki and who suffer from diseases that may be attributable to low levels of ionizing radiation.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Atomic Veterans Compensation Act of 1987".

SEC. 2. PRESUMPTION OF SERVICE CONNECTION.

Section 312 of title 38, United States Code, is amended by adding at the end the following new subsection:

"(c)(1) For the purposes of section 310 of this title, and subject to the provisions of section 313 of this title, in the case of any radiation-exposed veteran, the diseases specified in paragraph (2) of this subsection shall be considered to have been incurred in or aggravated by the veteran's participation in a radiation-risk activity during service on active duty during a period of war, notwithstanding the fact that there is no record or evidence of that disease during the period of such service.

"(2) The diseases referred to in paragraph (1) are the following:

"(A) All forms of leukemia, except chronic lymphatic leukemia, becoming manifest to a degree of 10 percent or more within 30 years after the last date on which the veteran participated in a radiation-risk activity.

"(B) Polycythemia vera becoming manifest to a degree of 10 percent or more within 30 years after the last date on which the veteran participated in such an activity.

"(C) Thyroid cancer becoming manifest to a degree of 10 percent or more within 30 years after the veteran's participation in such an activity.

"(D) Bronchogenic carcinoma becoming manifest to a degree of 10 percent or more within 30 years after the last date on which the veteran participated in such an activity.

"(E) Female breast cancer becoming manifest to a degree of 10 percent or more within 30 years after the last date on which the veteran participated in such an activity.

"(3) For purposes of this subsection—

"(A) The term 'radiation-exposed veteran' means a veteran who, while serving on active duty during a period of war, was exposed to ionizing radiation as a result of the veteran's participation in a radiation-risk activity.

"(B) The term 'radiation-risk activity' means onsite participation in—

"(i) the atmospheric detonation of a nuclear device; or

"(ii) the American occupation of Hiroshima and Nagasaki, Japan, before July 1, 1946.".

SEC. 3. EFFECTIVE DATE.

Subsection (c) of section 312 of title 38, United States Code, as added by the amendment made by section 2, shall take effect on October 1, 1987.

II

100TH CONGRESS
1ST SESSION

S. 453

To amend title 38, United States Code, and the Veterans' Dioxin and Radiation Exposure Compensation Standards Act to improve the standards for determining whether a radiation-related disease is service-connected, and for other purposes.

IN THE SENATE OF THE UNITED STATES

FEBRUARY 4, 1987

Mr. MURKOWSKI (for himself, Mr. DOMENICI, Mr. WARNER, and Mr. DIXON) introduced the following bill; which was read twice and referred to the Committee on Veterans' Affairs

---

A BILL

To amend title 38, United States Code, and the Veterans' Dioxin and Radiation Exposure Compensation Standards Act to improve the standards for determining whether a radiation-related disease is service-connected, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE AND REFERENCES.

(a) This Act may be cited as the "Veterans' ...izing Radiation Compensation Improvements Act of 1987"

(b) REFERENCES.—Except as otherwise expressly provided, whenever in this Act an amendment is expressed in

terms of an amendment to a section or other provision, the reference shall be considered to be made to a section or other provision of title 38, United States Code.

SEC. 2. PRESUMPTIONS RELATING TO CERTAIN DISEASES.

(a) WARTIME DISABILITY COMPENSATION.—(1) Section 312 is amended by adding at the end the following new subsection:

"(c)(1) For the purposes of sections 310 and 321 of this title, and subject to the provisions of section 313 of this title, in the case of any veteran who, while serving on active duty during a period of war, was exposed to ionizing radiation as a result of the veteran's participation in any activity described in paragraph (2) of this subsection at the site of that activity—

"(A) all forms of leukemia, except chronic lymphatic leukemia, becoming manifest within 30 years after the last date on which the veteran participated in that activity;

"(B) liver cancer becoming manifest 5 or more years after the last date on which the veteran participated in that activity; and

"(C) multiple myeloma or cancer of the bone marrow becoming manifest 5 or more years after the last date on which the veteran participated in that activity;

shall be considered to have been incurred in or aggravated by the veteran's participation in that activity notwithstanding that there is no record of evidence of that disease during the period of active duty.

"(2) The activities referred to in paragraph (1) of this subsection are—

"(A) the atmospheric detonation of a nuclear device; and

"(B) the American occupation of Hiroshima and Nagasaki, Japan, prior to July 1, 1946.".

(b) WARTIME DEATH COMPENSATION.—Subchapter III of chapter 11 is amended by adding at the end thereof the following new section:

"§ 323. Presumption relating to certain diseases

"For the purposes of section 321 of this title, section 312(c) of this title shall apply in the case of a claim for compensation under this subchapter.".

(c) PEACETIME DISABILITY COMPENSATION.—Section 333 is amended by adding at the end the following new subsection:

"(d) For the purposes of sections 331 and 341 of this title, and subject to the provisions of section 313 of this title, in the case of any veteran who, while serving on active duty, was exposed to ionizing radiation as a result of the veteran's

participation in the atmospheric detonation of a nuclear device at the site of the detonation of the nuclear device—

"(1) all forms of leukemia, except chronic lymphatic leukemia, becoming manifest within 30 years after the last date on which the veteran participated in that activity;

"(2) liver cancer becoming manifest 5 or more years after the last date on which the veteran participated in that activity; and

"(3) multiple myeloma or cancer of the bone marrow becoming manifest 5 or more years after the last date on which the veteran participated in that activity;

shall be considered to have been incurred in or aggravated by the veteran's participation in that activity notwithstanding that there is no record of evidence of that disease during the period of active duty.".

(d) PEACETIME DEATH COMPENSATION.—Subchapter V of chapter 11 is amended by adding at the end thereof the following new section:

"§ 343. Presumption relating to certain diseases

"For the purposes of section 341 of this title, section 333(d) of this title shall apply in the case of a claim for compensation under this subchapter.".

(e) CONFORMING AMENDMENTS.—(1) Section 313 is amended by inserting "or 333(d)" after "section 312" each place it appears.

(2) The table of sections at the beginning of chapter 11 is amended—

(A) by inserting after the item relating to section 322 the following new item:

"323. Presumption relating to certain diseases.";

and

(B) by inserting after the item relating to section 342 the following new item:

"343. Presumption relating to certain diseases.".

SEC. 3. DETERMINATIONS OF DOSE RESULTING FROM EXPOSURE TO IONIZING RADIATION.

The Veterans' Dioxin and Radiation Exposure Compensation Standards Act (98 Stat. 2725; 38 U.S.C. 354) is amended by adding at the end the following new section:

"TREATMENT OF RADIATION DOSE ESTIMATES

"SEC. 10. (a) For the purpose of adjudicating a claim for benefits under chapter 11 or 13 of title 38, United States Code, submitted by a veteran described in subsection (b), or a survivor of that veteran, on the basis of exposure to ionizing radiation, the Veterans' Administration shall deem the radiation dose estimate transmitted in the case of that veteran by the Director of the Defense Nuclear Agency (or any other appropriate office of the Department of Defense) to the Vet-

erans' Administration under this Act to be two times the estimated dose.

"(b)(1) A veteran referred to in subsection (a) is any veteran who, while serving on active duty, was exposed to ionizing radiation as a result of the veteran's participation in any activity described in paragraph (2) at the site of that activity

"(2) The activities referred to in paragraph (1) of this subsection are—

"(A) the atmospheric detonation of a nuclear device; and

"(B) the American occupation of Hiroshima and Nagasaki, Japan, prior to July 1, 1946.".

SEC. 4. APPLICATION OF AMENDMENTS.

(a) IN GENERAL.—Except as provided in subsection (b), no benefits shall accrue by reason of the amendments made by sections 2 and 3 for any period before the date of the enactment of this Act.

(b) EXCEPTION FOR EXISTING CLAIMS.—In the case of a claim for benefits under chapter 11 or 13 of title 38, United States Code, filed with the Veterans' Administration before the date of the enactment of this Act and adjudicated on or after that date—

(1) if a disease is determined to be service-connected on the basis of—

(A) a presumption prescribed in the amendment made by subsection (a), (b), (c), or (d) of section 2; or

(B) the radiation dose considered by the Veterans' Administration after the application of the amendment made by section 3,

the Veterans' Administration shall also determine whether the disease would have been determined to be service-connected without regard to that amendment; and

(2) if the Veterans' Administration determines that the disease would have been determined to be service-connected without regard to that amendment, the benefits under that chapter shall accrue in accordance with the effective date of the award of the benefits as determined under the applicable provision of section 3010 of such title.

II

100TH CONGRESS
1ST SESSION

S. 1002

To amend title 38, United States Code, to provide disability and death benefits to veterans (and survivors of such veterans) exposed to ionizing radiation during the detonation of a nuclear device in connection with the United States nuclear weapons testing program or the American occupation of Hiroshima or Nagasaki, Japan; and for other purposes.

IN THE SENATE OF THE UNITED STATES

APRIL 9 (legislative day, MARCH 30), 1987

Mr. CRANSTON (for himself, Mr. SIMON, Mr. MATSUNAGA, Mr. DECONCINI, Mr. MITCHELL, Mr. ROCKEFELLER, Mr. GRAHAM, and Mr. PELL) introduced the following bill; which was read twice and referred to the Committee on Veterans' Affairs

---

A BILL

To amend title 38, United States Code, to provide disability and death benefits to veterans (and survivors of such veterans) exposed to ionizing radiation during the detonation of a nuclear device in connection with the United States nuclear weapons testing program or the American occupation of Hiroshima or Nagasaki, Japan; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE: REFERENCES TO TITLE 38, UNITED STATES CODE.

(a) This Act may be cited as the "Veterans' Radiation Exposure Disability and Death Benefits Act of 1987".

(b) Except as otherwise expressly provided, whenever in this Act an amendment is expressed in terms of an amendment to a section or other provision, the reference shall be considered to be made to a section or other provision of title 38, United States Code.

SEC. 2. FINDINGS AND CONCLUSIONS; STATEMENT OF PURPOSE.

(a)(1) The Congress makes the following findings:

(A) In November 1985, the General Accounting Office (hereinafter in this section referred to as the "GAO") released the results of a two-year study of radiation exposure and radiation safety measures during "Operation Crossroads", the 1946 nuclear weapons test series in the Pacific in which over forty two thousand members of the Armed Forces participated, the largest number of participants of any such test series. The GAO concluded that the estimates of radiation exposure prepared by the Defense Nuclear Agency (hereinafter in this section referred to as the "DNA") for that operation may have significantly understated the actual ionizing radiation exposure received by partici-

pants in Operation Crossroads. Specifically, the GAO found:

(i) The DNA radiation exposure estimates were derived primarily from readings taken from film badges designed to detect radiation, which were worn by participants in Operation Crossroads. However, only 15 per centum of the participants actually were issued film badges, and the badges were not worn throughout the entire course of Operation Crossroads.

(ii) The DNA radiation exposure estimates failed to take into account problems related to the film badges which could have resulted in readings that were inaccurate by as much as 100 per centum as a result of defects in the film or in its processing.

(iii) The DNA radiation exposure estimates failed to take into account the extent to which Operation Crossroads participants received additional radiation exposure as a result of a lack or violation of comprehensive decontamination procedures.

(iv) The DNA radiation exposure estimates did not adequately measure internal radiation exposure which could have resulted from ingestion

or inhalation, thereby likely further underestimating total radiation exposure.

(B) On the basis of the GAO report, the Congress has concluded that the DNA's radiation exposure estimates provide an incomplete measure of the radiation exposure received by participants in Operation Crossroads.

(C) The DNA radiation exposure estimates have been relied on by the Veterans' Administration (hereinafter in this section referred to as the "VA") in evaluating, and generally denying, claims made by veterans or veterans' survivors for compensation in connection with radiation exposure received during Operation Crossroads.

(D) Including more than forty two thousand veterans who participated in Operation Crossroads, approximately two hundred thousand veterans participated in 235 detonations of nuclear devices in connection with the nuclear weapons testing program. As outlined in paragraphs (8) and (9) of section 2 of the Veterans' Dioxin and Radiation Exposure Compensation Standards Act (Public Law 98–542), enacted on October 24, 1984, Congress found:

(i) The film badges which were originally issued to members of the Armed Forces in con-

nection with the nuclear weapons testing program have previously constituted a primary source of dose information for veterans and survivors of veterans filing claims under chapter 11 or 13 of title 38, United States Code, for VA disability compensation or dependency and indemnity compensation in connection with exposure to radiation.

(ii) These film badges often provide an incomplete measure of radiation exposure, since they were not capable of recording inhaled, ingested, or neutron doses, were not issued to most of the participants in the tests, often provided questionable readings because they were shielded during the detonation, and were worn for only limited periods during and after each nuclear detonation.

(E) Studying the radiation exposure and long-term health effects of the tests other than Operation Crossroads would entail many years, and the delay in providing relief to veterans suffering radiation-related diseases would be unacceptable.

(F) Because of the relatively small size of the population of ionizing radiation-exposed veterans, the high incidence of cancer in the general population, and the great difficulty in locating individuals twenty-five

to forty years after their radiation exposure, no scientifically feasible morbidity study has yet been designed of the veterans who participated in the nuclear weapons testing program or the American occupation of Hiroshima or Nagasaki, Japan. A mortality study of a group of veterans from one series of detonations is only now in its early stages. An earlier mortality study of the veterans from five test series was severely criticized because of the failure to utilize a scientifically appropriate control group.

(G) Scientific research over many years has proven conclusively the dangers to human health from exposure to ionizing radiation.

(2) On the basis of the foregoing findings, the Congress concludes that a significant portion, if not all, of the veterans present at the nuclear detonations were exposed to some quantity of ionizing radiation from inhalation, ingestion, or external exposure and that no fully acceptable or reliable method has been developed to estimate those levels of exposure.

(3) The Congress makes the following further findings:

(A) It has become clear that the present process for adjudicating radiation-exposure claims that has been based on such radiation exposure estimating methods as are described above, has not resulted in the

fair adjudication of those claims. As the Congress found in 1984 in section 2(12) of the Veterans' Dioxin and Radiation Exposure Compensation Standards Act (Public Law 98–542), such claims—particularly those involving health effects with long latency periods—present adjudicatory issues which differ significantly from the issues presented in claims based upon the more usual types of injuries incurred in military service. Although since 1978 substantially more than six thousand claims for compensation or dependency and indemnity compensation have been filed by veterans and their survivors with the VA for disabilities claimed to have resulted from radiation exposure received during participation in the nuclear weapons testing program or in the occupation of Hiroshima or Nagasaki, Japan, the VA has awarded benefits in only twenty-five of those cases.

(B) There is some evidence that officials of the United States Government were aware as early as 1945 of the risks of long-term, adverse health effects from exposure to ionizing radiation. Nevertheless, military personnel repeatedly were exposed to ionizing radiation in connection with the nuclear weapons testing program. These military personnel were not informed of the risks associated with their participation in the

program; nor was their health status systematically monitored thereafter.

(C) Accordingly, exposing these military personnel to such risks in experiments relating to the development and potential use of nuclear weapons, and making no systematic effort to monitor their health thereafter, places an even greater than usual responsibility on the Government to ensure that these veterans receive appropriate compensation as well as necessary health care through the VA for any disabilities resulting from such exposure.

(D) The precise correlation between specific doses of ionizing radiation and the probability of cancer induction in a particular body organ or tissue in a given individual is not known at this time. What is known, however, is that—

(i) certain body organs and tissues have been shown to have a high susceptibility to induction of cancers by ionizing radiation, and not to be susceptible to any other risk factors. The resultant diseases are cancer of the thyroid and leukemia;

(ii) other body organs and tissues have been shown to be moderately susceptible to induction of cancer by radiation, and to not be as susceptible to any other risk factors. The resultant diseases

are cancer of the colon, cancer of the small intestine, cancer of the stomach, cancer of the liver (except where cirrhosis or hepatitis B is indicated), cancer of the bile ducts, cancer of the gallbladder, cancer of the pancreas, lymphomas (excluding Hodgkin's disease), and multiple myeloma. The link between such diseases and radiation exposure, and therefore the likelihood that the disease was incurred during service, is much less well-established than it is between the diseases referred to in division (i) of this subparagraph; and

(iii) certain other body organs and tissues have been shown to be somewhat susceptible to induction of cancer by radiation, but much less susceptible than those described in divisions (i) and (ii) of this subparagraph, or to be equally or even more susceptible to induction of cancer by other risk factors than they are to radiation. The resultant diseases are cancer of the lung, cancer of the esophagus, cancer of the rectum, cancer of the pharynx, cancer of the liver when cirrhosis or hepatitis B is indicated, cancer of the kidney, cancer of the urinary tract, cancer of the bladder, cancer of the brain and nervous system, cancer of

the salivary glands, cancer of the bones and joints, and cutaneous melanoma.

(E) As stated in section 2(13) of the Veterans' Dioxin and Radiation Exposure Compensation Standards Act (Public Law 98–542), it has always been the policy of the VA, and it is the policy of the United States, that when, with respect to individual claims for service connection of diseases and disabilities, after consideration of all evidence and material of record, there is an approximate balance of positive and negative evidence regarding the merits of an issue material to the determination of a claim, the benefit of the doubt in resolving each such issue shall be given to the claimant.

(b) It is therefore the purpose of this Act to establish a process within the VA for carrying out the findings and conclusions of the Congress set forth in subsection (a) in order to—

(1) provide a montly disability or death benefit equal to that provided in chapter 11 or 13 of title 38, United States Code, based on the exposure of a veteran to ionizing radiation during participation in the nuclear weapons testing program or in the American occupation of Hiroshima or Nagasaki, Japan, when the veteran develops a disease, described in subparagraph

(D)(i) of this paragraph, which has been shown to be strongly associated with radiation and which has not been shown to be strongly associated with any other risk factors;

(2) provide a monthly disability or death benefit payable at the rate of 50 per centum of such compensation as is provided in chapter 11 or 13 of title 38, United States Code, based on the exposure of a veteran to ionizing radiation during participation in the nuclear weapons testing program or in the American occupation of Hiroshima or Nagasaki, Japan, when the veteran develops a disease, described in subparagraph (D)(ii) of this paragraph, which has been shown to be moderately associated with radiation and which has not been shown to be associated with other significant risk factors; and

(3) Provide special consideration of claims for compensation or dependency and indemnity compensation under chapter 11 or 13 of title 38, United States Code, based on the exposure of a veteran to ionizing radiation during participation in the nuclear weapons testing program or in the American occupation of Hiroshima or Nagasaki, Japan, when the veteran develops a disease, described in subparagraph (D)(iii) of this paragraph, which has been shown to be somewhat as-

sociated with radiation, but much less so than those diseases referred to in paragraphs (1) and (2) of this subsection, or is equally or more strongly associated with other risk factors than with radiation.

SEC. 3. PROVISION OF DISABILITY AND DEATH BENEFITS FOR CERTAIN VETERANS AND THEIR SURVIVORS.

(a) Title 38 is amended by inserting after chapter 13 the following new chapter:

"CHAPTER 14—DISABILITY AND DEATH BENEFITS FOR CERTAIN VETERANS EXPOSED TO IONIZING RADIATION AND THEIR SURVIVORS.

"Sec.
"451. Definitions.
"452. Disability and death benefits for radiation-exposed veterans and their survivors.
"453. Rates of disability and death benefits.
"454. Special consideration in connection with other diseases.
"455. Contrary affirmative evidence.
"456. Other benefits.

"§ 451. Definitions

"For the purpose of this chapter, the term 'radiation-exposed veteran' means a veteran (including a person who died in the active military, naval, or air service) who, in connection with such veteran's participation in the United States Government's test of a nuclear device or in the American occupation of Hiroshima or Nagasaki, Japan, prior to July 1, 1946, was exposed to ionizing radiation from the detonation of a nuclear device during such veteran's service.

"§ 452. Disability and death benefits for radiation-exposed veterans and their survivors

"(a) In the case of a radiation-exposed veteran who suffers or has died from a disease specified in subsection (c)(1) of this section, the Administrator shall pay a monthly disability benefit to such veteran or a monthly death benefit to the survivors of such veteran in accordance with section 453 of this title.

"(b) In the case of a radiation-exposed veteran who suffers or has died from a disease specified in subsection (c)(2) of this section and whose estimated service-related radiation exposure, as computed pursuant to section 354(c) of this title, exceeds 1 rem, the Administrator shall pay a monthly disability benefit to such veteran or a monthly death benefit to the survivors of such veteran in accordance with section 453 of this title, except that such benefit shall be paid at a rate that is 50 per centum of the rate otherwise payable under such section.

"(c)(1) The diseases referred to in subsection (a) of this section are the following:

"(A) Cancer of the thyroid, when manifested 5 or more years after the first date on which the radiation-exposed veteran participated in the ionizing radiation-exposing activity;

"(B) leukemia, when manifested within 30 years after the last date on which the radiation-exposed vet-

eran participated in the ionizing radiation-exposing activity.

"(2) The diseases referred to in subsection (b) of this section are the following, when manifested five or more years after the first date on which the radiation-exposed veteran participated in the ionizing radiation-exposed activity:

"(A) Cancer of the colon;

"(B) cancer of the small intestine;

"(C) cancer of the stomach;

"(D) cancer of the liver, except where cirrhosis or hepatitis B is indicated;

"(E) cancer of the bile ducts;

"(F) cancer of the gallbladder;

"(G) cancer of the pancreas;

"(H) lymphomas (excluding Hodgkin's disease; and

"(I) Multiple myeloma.

"(d) A benefit may not be paid under this section with respect to a disease or the death of a radiation-exposed veteran for any month for which compensation is payable to that veteran for that disease under chapter 11 of title 38, United States Code, or for which dependency and indemnity compensation is payable for that death under chapter 13 of such title.

"§ 453. **Rates of disability and death benefits**

"Except as provided in subsection (b) of section 452 of this title, a disability benefit payable to a veteran for a disease specified in section 452(c) of this title shall be paid at the rate at which compensation would be payable under chapter 11 of this title for the disability resulting from such disease, and a death benefit payable to the survivors of a radiation-exposed veteran pursuant to section 452 of this title shall be paid based on the eligibility requirements (other than any requirement relating to the service-connection or compensability of a disability) and at the rates that apply to benefits under chapter 13 of this title.

"§ 454. **Special consideration in connection with other diseases**

"(a) When a claim is filed by a radiation-exposed veteran or a survivor of a radiation-exposed veteran for benefits under chapter 11 or chapter 13 of this title, in connection with any disease specified in subsection (b) of this section, the Administrator shall give special consideration to the adjudication of such claim, including giving conclusive weight to the findings of the Congress set forth in section 2 of the Veterans' Radiation Exposure Disability and Death Benefits Act of 1987 relating to the relationship between the disease for which benefits are claimed and ionizing radiation exposure, in the process of evaluating the claim using the radiation-ex-

posed veteran's estimated service-related radiation exposure as computed pursuant to section 354(c) of this title.

"(b) The diseases referred to in subsection (a) of this section are the following, when manifested 5 or more years after the first date on which the radiation-exposed veteran participated in the ionizing radition-exposing activity:

"(1) Cancer of the lung;

"(2) cancer of the esophagus;

"(3) cancer of the rectum;

"(4) cancer of the pharynx;

"(5) cancer of the liver when cirrhosis or hepatitis B is indicated;

"(6) cancer of the kidney;

"(7) cancer of the urinary tract;

"(8) cancer of the bladder;

"(9) cancer of the brain and nervous system;

"(10) cancer of the salivary glands;

"(11) cancer of the bones and joints; and

"(12) cutaneous melanoma.

"§ 455. Contrary affirmative evidence

"The provisions of this chapter shall not apply with respect to a disease occurring in a radiation-exposed veteran—

"(1) where there is affirmative evidence that the disease was not incurred as the result of the veteran's participation in the United States Government's test of

a nuclear device or in the American occupation of Hiroshima or Nagasaki, Japan, prior to July 1, 1946; or

"(2) where there is affirmative evidence to establish that an intercurrent injury or disease which is a recognized cause of the disease was suffered by the veteran between the date of the veteran's most recent participation in such a test or in such occupation and the onset of such described disease.

"**§ 156. Other benefits**

"(a) Any disease establishing eligibility for a disability or death benefit under this chapter shall be treated for purposes of all other laws of the United States (other than chapters 11 and 13 of this title) as if such disease were service connected.

"(b) Receipt of any disability or death benefit under this chapter shall be treated for purposes of all other laws of the United States as if such benefit were compensation under chapter 11 of this title or dependency and indemnity compensation under chapter 13 of this title, respectively.".

SEC. 4 RADIATION EXPOSURE ESTIMATES.

(a) Section 301 is amended by adding at the end the following new paragraphs:

"(5) The term 'radiation-exposed veteran' means a veteran (including a person who died in the active military, naval, or air service) who, in connection with such veteran's

participation in the United States Government's test of a nuclear device or in the American occupation of Hiroshima or Nagasaki, Japan, prior to July 1, 1946, was exposed to ionizing radiation from the detonation of a nuclear device during such veteran's service.

"(6) The term 'DNA estimate' means the radiation exposure estimate calculated by the Defense Nuclear Agency of the Department of Defense pursuant to the guidelines, as in effect on April 8, 1987, prescribed by the Secretary of Defense pursuant to section 7(a)(1) of the Veterans' Dioxin and Radiation Compensation Standards Act (Public Law 98–542).".

(b) Section 354 is amended by adding at the end the following new subsection:

"(c) For the purpose of adjudicating a claim for benefits under chapters 11, 13, or 14 of this title, submitted by a radiation-exposed veteran or by the survivor of a radiation-exposed veteran, the veteran's estimated service-related radiation exposure shall be the total of the highest radiation exposure estimate determined by the Director of the Defense Nuclear Agency (or any other appropriate office of the Department of Defense) for that individual, as established by film badge reading, reconstruction, or a combination of film badge reading and reconstruction, plus—

"(1) in the case of a radiation-exposed veteran who was exposed to ionizing radiation through such veteran's participation in an operation in the United States Government's nuclear weapons testing program—

"(A) an additional 5 rems, if the DNA estimates indicate that 25 per centum or more of the members of the radiation-exposed veteran's service branch participating in the operation, or 25 per centum or more of the total number of participants in the operation, were exposed to more than 3 rems of ionizing radiation;

"(B) an additional 3 rems, if the DNA estimates indicate that 25 per centum or more of the members of the radiation-exposed veteran's service branch participating in the operation, or 25 per centum or more of the total number of participants in the operation, were exposed to more than 1 rem of ionizing radiation; or

"(C) an additional 1 rem, if the DNA estimates indicate that 20 per centum or more of the members of the radiation-exposed veteran's service branch participating in the operation, or 20 per centum or more of the total number of partici-

pants in the operation, were exposed to more than 0.5 rem of ionizing radiation;

"(2) in the case of a radiation-exposed veteran who was exposed to ionizing radiation through such veteran's participation in the American occupation of Hiroshima or Nagasaki, Japan, prior to July 1, 1946, an additional 1 rem; or

"(3) in the case of a radiation-exposed veteran (A) who was exposed to ionizing radiation through such veteran's participation in the American occupation of Hiroshima or Nagasaki, Japan, prior to July 1, 1946, and participated in one or more nuclear weapons tests, or (B) who participated in one or more nuclear weapons tests, the total of the highest number of rems determined for the veteran under clause (1)(A), (B), or (C) of this subsection plus the number of rems determined under clause (2) of this subsection.".

SEC. 5. DEFINITIONS.

For the purpose of this Act, the term "radiation-exposed veteran" shall have the same meaning given such term in section 451 of title 38, United States Code (as added by section 3 of this Act).

SEC. 6. PRESERVATION OF EXISTING RIGHTS.

Nothing in this Act shall in any way operate or be construed to prevent the granting of service connection under

chapter 11 or 13 of title 38, United States Code, in the case of any disease or disability from which a radiation-exposed veteran suffers, including those diseases or disabilities described in this Act, otherwise determined through the exercise of sound judgment to have been incurred in or aggravated by active military, naval, or air service, including such veteran's participation in the United States Government's nuclear weapons testing program or in the American occupation of Hiroshima or Nagasaki, Japan, prior to July 1, 1946.

SEC. 7. EXTENSION OF HEALTH-CARE ELIGIBILITY.

The provisions of section 610(a)(1)(G) of title 38, United States Code, as such provisions relate to eligibility for hospital care on the basis of exposure to radiation, shall, notwithstanding any such provision, terminate no earlier than the date on which, pursuant to section 10 of this Act, the provisions of this Act terminate.

SEC. 8. REQUIREMENTS REGARDING VETERANS' ENVIRONMENTAL HAZARDS ADVISORY COMMITTEE REPORTS.

Section 6(d)(3) of the Veterans' Dioxin and Radiation Exposure Compensation Standards Act (Public Law 98–542) is amended by striking out "the Committee and the Administrator" and inserting in lieu thereof "the Committee, the Administrator, and the Committees on Veterans' Affairs of the Senate and House of Representatives".

SEC. 9. EFFECTIVE DATE.

This Act shall take effect on October 1, 1987. No benefit may be paid for any period before such date by reason of the enactment of this Act.

SEC. 10. TERMINATION OF ACT.

The provisions of the amendments made by sections 3 and 4 of this Act shall not apply with respect to any claim for benefits filed after September 30, 1990.

TESTIMONY OF THE HON. J. ROY ROWLAND BEFORE THE

COMMITTEE ON VETERANS' AFFAIRS

SUBCOMMITTEE ON COMPENSATION AND PENSIONS,

ON H.R. 1811, THE ATOMIC VETERANS COMPENSATION ACT OF 1987

MAY 20, 1987

Mr. Chairman, I appreciate your providing this opportunity for me to testify here today and also for allowing me to join you and my other colleagues at the rostrum after my testimony, in order to question the other witnesses who will appear before the Subcommittee.

I also want to thank you and the Vice Chairman of the Committee, Mr. McEwen, for your cosponsorship of the legislation. It is very encouraging and I appreciate the fact that the leadership of the Full Committee and of this Subcommittee, joined as original cosponsors of the bill.

Before I begin, I also want to thank my friend and colleague John Paul Hammerschimdt for the support and work he has done on this legislation, and with respect to this issue over the years.

Mr. Chairman, I am pleased to offer my testimony with respect to the legislation I have introduced, H.R. 1811, the Atomic Veterans' Compensation Act of 1987. The bill would provide service-connected benefits for those veterans who are suffering from certain radiation-related cancers and who participated in the above-ground testing of nuclear weapons conducted by the Department of Defense during the years 1945 to 1963, or the American occupation of Hiroshima and Nagasaki, Japan, after the atomic bombing of those cities in 1945.

As you know, this Committee is not unfamiliar with this important subject and in fact, it has reported-out legislation aimed at addressing the needs of atomic veterans. In the 98th Congress, we passed legislation, the Veterans' Dioxin and Radiation Exposure Compensation Standards Act, which would have provided a temporary disability or death allowance for atomic veterans. We also included a provision that established a Scientific Council to advise the VA Administrator on the finding of scientific studies relating to the possible adverse health

effects of exposure to dioxin or radiation. Unfortunately, only the Scientific Council survived the House and Senate conference on the bill.

Today, as we focus on H.R. 1811, we will be discussing a much more liberal approach to the health concerns of the atomic veteran, yet one which addresses the "gray area" we find ourselves in when we start talking about low levels of ionizing radiation and the effect this has upon the development of disease.

Under current law and regulations, it is extremely difficult for atomic veterans to prove that the disease they have developed is a "service-connected" disability that would entitle the veteran to compensation. The relationship between low levels of ionizing radiation and the development of cancer presents an extremely difficult problem for medical specialists, not to mention disabled veterans. Under the bill, the development of certain diseases within certain prescribed time limits will be

presumed to have been incurred in or aggravated by the veteran's participation in the specified radiation-risk activities.

In working on this legislation, I have been very concerned that we be as specific as possible in determining which diseases would entitle an Atomic Veteran to compensation. At the present time, the bill includes the following diseases: all forms of leukemia (except chronic lymphatic leukemia), polycythemia vera, thyroid cancer, bronchogenic carcinoma, and female breast cancer. I chose these diseases based on the evidence I have seen regarding the relationship of these diseases and ionizing radiation. In providing a presumption of service-connection, I am concerned that the diseases for which the presumption is provided be those in which medical evidence shows a connection.

This list, however, should not be considered as all inclusive. If, during the course of this and any other hearing on this legislation, other diseases are shown to have a high incidence-rate among these veterans, I am open to examining the possibilities of including those diseases in the bill.

Additionally, I am similarly inclined to including veterans who, while on active duty, have been exposed to ionizing radiation in situations other than those prescribed in the bill. The cost estimates I have received on the legislation lend themselves to actions of this sort. The Congressional Budget Office estimates the costs of this legislation to be $2 million for each year until 1992. This is certainly a minimal amount in comparison to the suffering that many of these veterans have endured.

Mr. Chairman, many questions surrounding this issue may, indeed, never be answered with any degree of certainty. However, we should certainly give the benefit of the doubt to our veterans.

Thank you again for allowing me to testify and to participate in the questioning of the other witnesses here today. I will be happy to answer any questions you may have at this point.

STATEMENT OF DONALD L. IVERS

GENERAL COUNSEL

VETERANS ADMINISTRATION

BEFORE THE

HOUSE SUBCOMMITTEE ON COMPENSATION,

PENSION AND INSURANCE

MAY 20, 1987

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to present the views of the Veterans Administration on the three bills on the agenda, H.R. 1811, S. 453 and S. 1002. Each would provide disability and death benefits for veterans and their survivors for certain radiogenic diseases manifested within a specified period of time following a veteran's participation in nuclear testing or the American occupation of Hiroshima and Nagasaki prior to July 1, 1946. Moreover, S. 453 and S. 1002 would require the VA, in adjudicating certain radiation claims, to increase the dose estimates provided by the Defense Nuclear Agency pursuant to Public Law 98-542.

This agency is committed to assuring that the health concerns of radiation-exposed veterans are responsibly addressed. We have fully implemented those provisions of law that authorize

2.

free, comprehensive medical care for "atomic veterans" regardless of whether their ailments can be shown to be radiation related. We have also worked diligently to devise and apply regulations to ensure the careful, reasoned consideration of their compensation claims on the basis of the best available evidence. The measures under discussion, however, would mark a radical departure from this reasoned approach. The bills are devoid of a basis in accepted scientific knowledge and would undermine the principle of service connection, which is the foundation of our compensation programs. Accordingly, the VA strongly opposes enactment of H.R. 1811, S. 453 and S. 1002.

Our primary objections to the bills are threefold. First, existing law already contains adequate provision for establishment of benefit entitlement for radiogenic diseases. Second, establishment of entitlement on a presumptive basis in the case of low-level radiation exposure would substantially compromise the legitimacy of the VA's benefit programs for service-disabled veterans. Third, the eligibility criteria embodied in the bills are overinclusive and inequitable. We also object to those portions of the Senate bills that would require VA to mechanically double or otherwise increase the dose estimates provided by the Defense Nuclear Agency.

3.

The VA currently has broad authority to grant service connection for disabilities, including those caused by exposure to ionizing radiation during military service, even where the initial symptoms of disease manifest themselves years after exposure. Some 28 such claims have been allowed to date. Moreover, when scientific research produces new findings on the cause of a particular disease or its association with the circumstances of service, existing law enables the VA to revise its regulations to assure the latest scientific data are brought to bear. This ensures an orderly system of claims adjudication that is firmly based on accepted medical and scientific knowledge.

We have implemented a regulation, at 38 C.F.R. § 3.311b, to specifically govern the adjudication of compensation claims based on radiation exposure. Recognizing that the medical and legal issues in such claims do not lend themselves to any pat formula or blanket rule, our regulation provides for consideration of many variables, including probable dose, type of radiation, radiation-sensitivity of the tissue, time lapse between exposure and the onset of disease, etc.

4.

All authoritative scientific evidence demonstrates that the vast majority of atomic veterans received very low doses of radiation. For example, official film badge data for nuclear test participants show that fully 42% received no dose whatsoever, and the average for the entire group was only .5 rem. Less than 1% received doses exceeding 5 rems, which under current Federal guidelines is the annual allowable exposure for radiation workers. Doses from nuclear testing fall, on average, near the range of the average annual dose sustained by the general population from natural background sources and routine diagnostic procedures.

The doses for the occupation forces were even more negligible, due to a number of historical factors. A worst-case analysis formulated by the Defense Nuclear Agency shows that no veteran could have sustained more than 1 rem as a result of his participation in the occupation of Hiroshima or Nagasaki.

Reliable studies do not demonstrate an appreciable health risk from the low doses sustained by most radiation-exposed veterans. Prudence may dictate that we not assume there is no adverse health consequence whatsoever from exposure to such low doses,

5.

but the best estimates are that the risk, if any, is infinitesimally small. For example, the lifetime risk of death from cancer in the general population is some 16% or 17%, so that we might expect 32,000 to 34,000 deaths from cancer will eventually occur in any population of 200,000 (roughly the number of veterans who participated in the weapons tests). A radiation exposure of .5 rem for this population would only, it is widely accepted, increase the number of cancer deaths by possibly ten cases (above the 32,000 to 34,000 "naturally occurring" ones). The issue really becomes whether the Federal government should presume that all 32,010 eventual cancers among this group of veterans should be compensated for in order to assure that the ten possible excess cases related to service are covered, or whether it is better public policy to look at each case individually to separate the more deserving claims from those less deserving. We believe the only responsible approach is the latter.

The policy that the Government owes more to veterans disabled as a result of service than to other veterans has guided benefits programs since our Nation's infancy. No one can question the responsibility to compensate for loss of life or health in the line of duty, which is why the VA's programs deserve and

6.

enjoy broad public support. If eligibility criteria are diluted such that significant numbers of beneficiaries whose disabilities are not traceable to service can qualify, we fear that public support of our programs will erode and there may be a harmful backlash. That is why it is essential that eligibility standards remain tenable, and that the underlying principle of service connection not be compromised, either by dilution of the eligibility criteria for service-connected-disability compensation or by provision of essentially the same benefits under a different name.

We are also concerned that the bills may not be defensible on substantive due process grounds. Whereas the proposals focus on nuclear-test participants and the occupation forces, they exclude all other veterans exposed to radiation in service. Literally every servicemember who served even one day was exposed to natural background radiation and, since the nuclear-age began, to radiation from fallout and X-rays. (Virtually all veterans of the modern era received standard X-rays during entrance and separation exams.) We question a policy that would compensate veterans exposed to radiation under certain circumstances, yet deny equal treatment to other veterans who were equally exposed during service.

7.

For example, consider the case of a test participant whose estimated dose was .5 rem. If he later contracted leukemia, the bills would require that he be presumed eligible for VA benefits. Now, consider the second case of a veteran whose documented dose of .5 rem was sustained as a result of his service as an X-ray technician. The VA could legitimately deny his claim based upon the extremely tenuous relationship between so small a dose and the development of leukemia. One must ask whether there is a rational basis for compelling a different result in the first veteran's case.

Finally, we object to those sections of the Senate bills that would require the VA, in adjudicating radiation claims, to double or otherwise increase the dose estimates provided by the Defense Nuclear Agency. The provisions arbitrarily denigrate the years of work performed by DNA in painstakingly tabulating and reconstructing dose data. In a 1985 report, the National Research Council of the National Academy of Sciences approved DNA's gamma dose-calculations. We are aware of a GAO report that is somewhat critical of DNA's assessment of doses from "Operation Crossroads," however, we are also mindful of DNA's conclusion that even if GAO's critique were valid, which DNA

8.

disputes in many respects, the overall dose estimates from "Operation Crossroads" would have varied by only 10% from DNA's calculations.

VA's radiation regulation already provides that whenever a dose is reported to VA as a range of possible exposure levels, we will presume exposure at the highest level of the dose range reported. It also provides that if there is any contention made by a credible source that the dose data supplied by the military service materially understate true exposure, the disagreement will be referred to an independent expert, selected by the National Institutes of Health, for reconciliation.

We are satisfied that current procedures provide VA with ample flexibility to assess doses, and perceive no justification for adopting the crude methods of the Senate bills. To the extent critics may question the dose estimates provided by DNA, the arbitrary doubling of such estimates or mechanically adding a few rems would not enhance their accuracy or credibility. In the final analysis, the proper approach to dose estimation requires reasoned calculations based on valid historical data and scientific principles.

9.

As recently as 1984, Congress rejected blanket presumptions for atomic veterans, and instead entrusted to VA responsibility for carrying out a policy that would "ensure that Veterans Administration disability compensation is provided . . . for all disabilities . . . that are connected, based on sound scientific and medical evidence, to [exposure] . . . . " We have in place rules to do exactly that, and enactment of these bills would be a serious retreat from the principle that benefit eligibility should be grounded in sound scientific and medical evidence. For these reasons, we cannot countenance so unwarranted an undermining of the concept that benefit eligibility be based on disability incurred in service and must register in the strongest possible terms our objection to these measures.

Defense Nuclear Agency
Public Affairs Office
Washington, D. C. 20305
325-7095/7306

FACT SHEET

6 August 1980

HIROSHIMA AND NAGASAKI OCCUPATION FORCES

Introduction.

This Fact Sheet discusses the current Department of Defense (DoD) research effort into the postwar (1945-46) occupation of the Japanese cities of Hiroshima and Nagasaki by U.S. military forces. It outlines the circumstances and effects of the atomic bombing of those cities, the units involved in the occupation, their mission, the duration of their stay in Japan, the ionizing radiation exposure that individuals might have experienced as a result of residual radiation from the bombings, and the possible health risk that veterans of the occupation forces might experience as a result of those radiation doses.

DoD Research Program.

In 1977, as a result of growing national interest and concern over possible adverse health experiences of former servicemen who had participated in the atmospheric nuclear test program, 1946-62, DoD commenced an intensive, high-priority, multi-faceted program on behalf of these individuals. The program, termed the Nuclear Test Personnel Review (NTPR), involves detailed research into archives and data repositories nationwide; publication of a bookshelf of volumes comprising a personnel-oriented history of the atmospheric test program; declassification and reprinting of source documents; highly technical reconstruction of radiation dosages; wide-ranging public information programs aimed at establishing contact with former test participants; individual notification of participants who may have received radiation doses in excess of 5 rem, coupled with a program of free medical examinations; sponsorship of morbidity-mortality studies by the National Academy of Sciences to ascertain whether or not former test participants are experiencing adverse health effects that could be attributable to radiation exposure during the testing; and continuing assistance to veterans and the Veterans Administration (VA) on issues involving test participation, radiation exposure, and claims for VA compensation. The Defense Nuclear Agency (DNA) is the DoD executive agent for this NTPR program. It has been underway for over two years, and is estimated to require another two years for completion. It is adequately funded (about

$6 million per year) and is staffed at a level of about 170 man-years per year, including active NTPR teams in each Service. A separate DNA Fact Sheet on the NTPR program is available.

In 1979, when concerns arose that veterans of the postwar occupation of Hiroshima and Nagasaki might be experiencing adverse health effects, DNA expanded its on-going NTPR program to encompass these occupation veterans. Thus since the fall of 1979, DNA has been carrying out a detailed research program to recover, from records, historical documents, and interviews, all possible data pertaining to the possible radiation exposure of occupation troops. The Government is deeply concerned over the welfare of these veterans and is determined to ensure that the issue is fully investigated and that individual concerns receive rapid and thorough responses. This Fact Sheet summarizes our research to date.

The Wartime Bombings.

The bombings were carried out in early August, 1945. Their objective was to bring World War II to a quick end, and thereby avoid many months of fighting and continued destruction, and the deaths of an estimated million U.S. servicemen, an equal number of Allied servicemen, and a much larger number of Japanese, that would result from the planned invasion of the Japanese home islands. The targets in both Hiroshima and Nagasaki were military installations and war industries; and in both cases warnings and surrender ultimatums were given prior to the bombings. Several days after the bombings, the Japanese government indicated its willingness to surrender unconditionally, and the formal surrender took place on 2 September 1945, ending World War II.

The first atomic bomb was dropped on Hiroshima on 6 August 1945. It was a uranium-235 weapon, detonated about 1,670 feet above the ground, with a yield of about 13 kilotons (kt). Figure 1 is an outline map of Hiroshima, showing the built-up area of the city (shaded area), the hypocenter of the burst (the spot on the ground directly under the detonation), and the approximate perimeter of total destruction from blast and fire (dashed line). Figure 2 is a reproduction of a photograph illustrating the totality of devastation to Hiroshima inside this perimeter.

The second bomb was dropped on Nagasaki on 9 August 1945. It was a plutonium-239 weapon, detonated about 1,640 feet above the ground with a yield of about 23 kt. Figure 3 is an outline map of Nagasaki, showing the built-up area of the city (shaded area), the hypocenter of the burst (the spot on the ground directly under the detonation), and the approximate perimeter of total destruction from blast and fire (dashed line). Figure 4 is a reproduction of a photograph illustrating the totality of devastation to Nagasaki inside this perimeter.

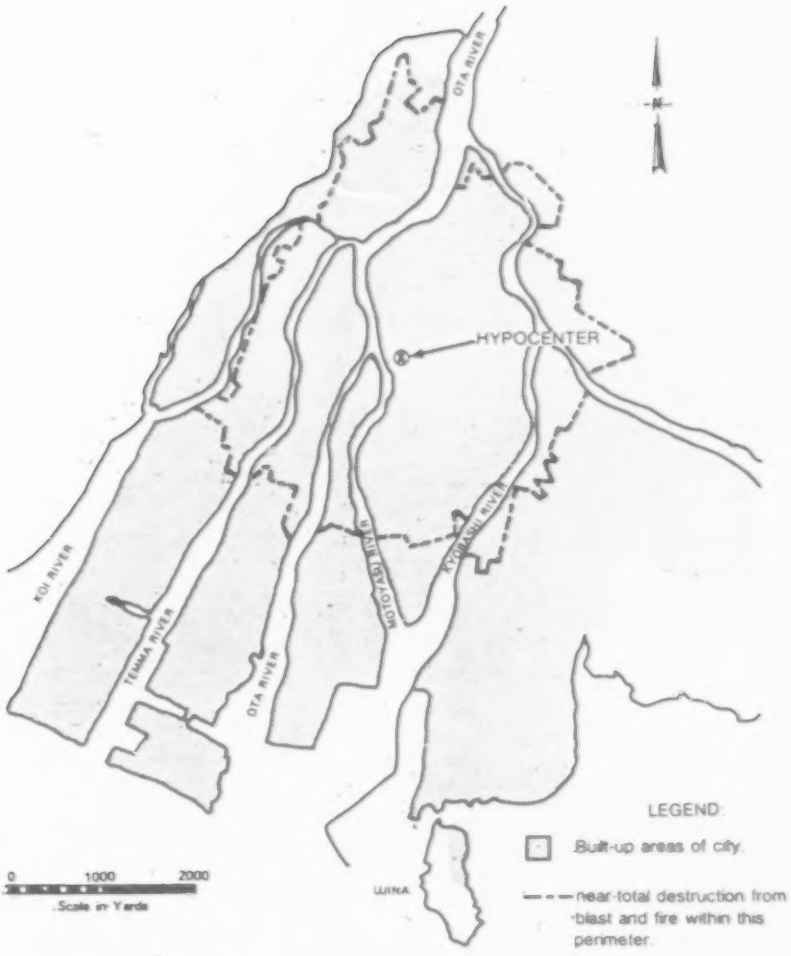

Figure 1

HIROSHIMA

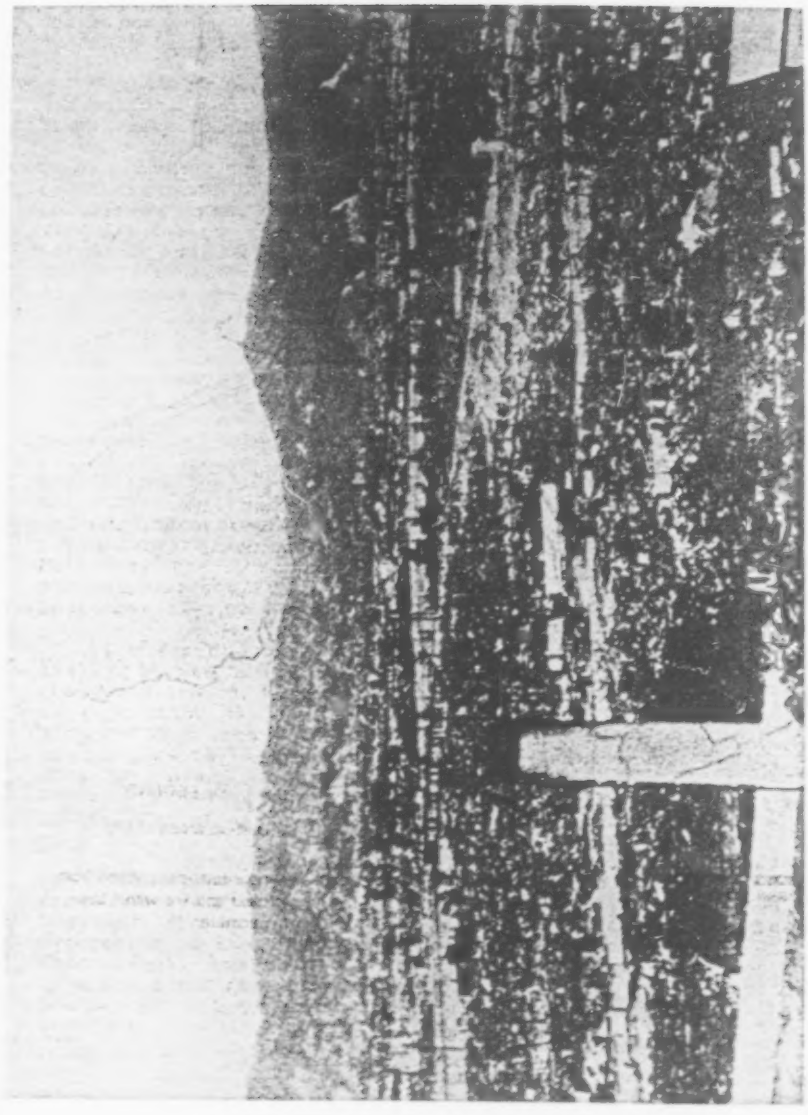

Figure 2. Hiroshima, looking across the Hypocenter

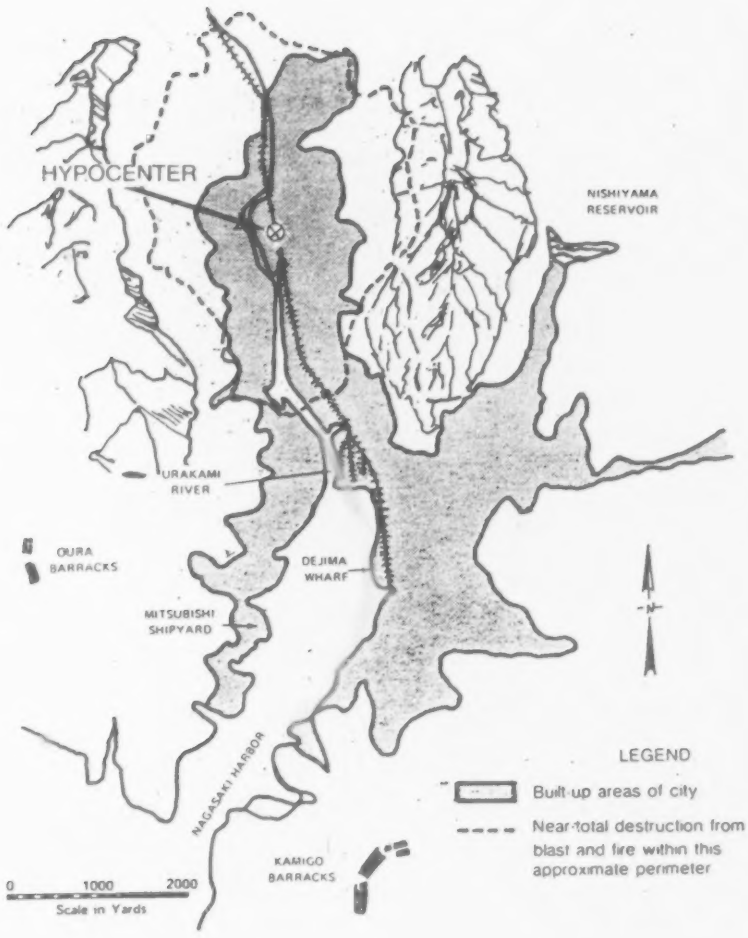

Figure 3

NAGASAKI

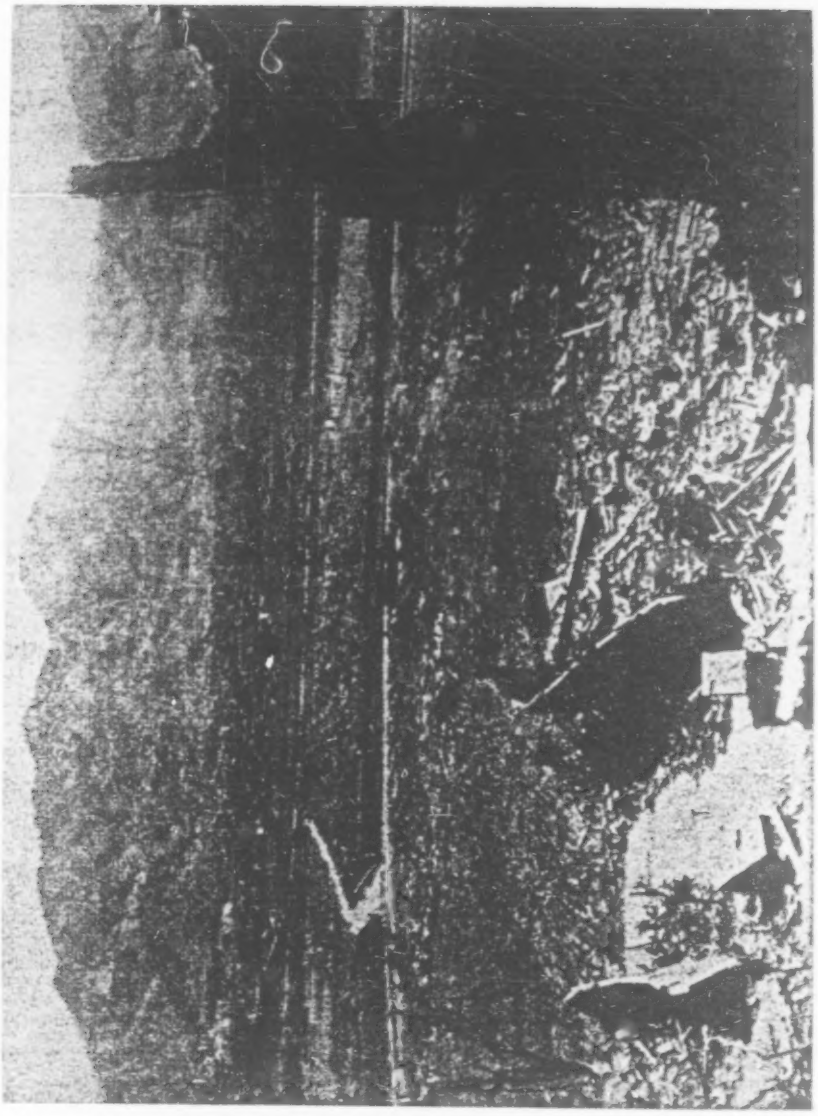

Figure 4. Nagasaki, looking across the Hypocenter

In terms of residual radiation, the effects in each city were similar. The burst altitude was so high that negligible residual radioactivity reached the ground in the vicinity of the hypocenter as local fallout. The detonation produced an instantaneous burst of gamma rays and neutrons and a fireball several hundred feet in diameter. Because the height of burst was 1600-1700 feet, the fireball's lower periphery was still a thousand feet or more above the ground at its maximum diameter. The fireball rose rapidly, at a rate of about 100 feet per second, accompanied by strong updrafts. On the ground, inrushing winds of high velocity entrained dust, converged on the burst point, and rose in a narrow column. These winds carried dust aloft, where it was mixed with the rising cloud of bomb residue. By the end of the first minute, the fireball had risen to a height of about one mile, had lost its brilliance, and was continuing to expand by mixing with the cooler surrounding air. The dust in the cloud became contaminated with the fission products and unfissioned material from the bomb as it continued to rise and mushroomed out at an altitude of several tens of thousands of feet. After some ten minutes the radioactive cloud reached its maximum height of 40,000-50,000 feet, all the while being blown downwind by the high-altitude winds. Initially, the radioactivity in this cloud was intense; however, as it was blown downwind over tens of thousands of miles it became quite dilute. Most of the radioactive particles eventually returned to earth over long periods of time as extremely low-level fallout covering much of the globe. However, at the local areas of the detonations themselves--that is, at the cities of Hiroshima and Nagasaki--the fission products, bomb residue, and contaminated dust were going up, not down.

Thus, in Hiroshima and Nagasaki, the high burst altitude was the key factor in preventing any significant residual contamination. Had either bomb burst on the surface, or at such a low altitude that the fireball reached the ground, it would have been a different story.

Early Radiation Surveys.

Immediately after the bombing a series of actions were undertaken to verify, through on-site surveys, that any residual radiation which might remain in the cities of Hiroshima and Nagasaki and their vicinity would not present a health hazard to occupation troops, or to continued habitation by the Japanese. The bombs had been planned as air bursts, thus it was anticipated that little residual contamination would remain in the vicinity after the detonations, and that whatever radiation there was would decay within days to very low levels. Scientific data taken at the time

of the bombings showed that the detonations had occurred at the planned altitudes; however, U.S. authorities believed it essential to conduct radiation surveys of the cities themselves. An additional purpose of the surveys was the obtaining of scientific data on the effects of nuclear weapons.

- The first of these surveys was carried out on an urgent basis by scientists from the Manhattan District (the U.S. organization that had developed the bombs) under the leadership of General Farrell. With the forth-coming occupation by U.S. troops in mind, an August 12 message from General Marshall (U.S. Army Chief of Staff in Washington) to General MacArthur (the Theater Commander) emphasized the importance of getting the survey teams to the cities quickly ". . . in order that these troops shall not be subjected to any possible toxic effects, although we have no reason to believe that any such effects actually exist." The teams made rapid radiation surveys of Hiroshima on 8-9 September (a month before occupation troops arrived in that area), and of Nagasaki on 13-14 September (ten days before occupation troops arrived). They reported that there was negligible radioactivity. These "quick-look" reports served the critically important purpose of allowing occupation plans for these areas to proceed.

- A much more extensive survey was made a few days later by the Manhattan Project Atomic Bomb Investigating Group--some members of which had participated in the previous rapid surveys. This team of scientists made and recorded detailed measurements in Nagasaki from 20 September to 6 October, and in Hiroshima from 3 to 7 October, and filed extensive reports. These reports have been used over the subsequent years as basic source documents. All measurements showed the levels of residual radioactivity to be extremely low.

- A third series of on-site surveys was conducted a few days later by the Naval Technical Mission to Japan. This team surveyed Nagasaki during the period 15-27 October, and Hiroshima on 1-2 November 1945. The results of this extensive and well-documented survey corroborated the earlier conclusions that the residual radioactivity in and around Hiroshima and Nagasaki at the time the occupation forces arrived was so low as to present a negligible health hazard. These reports--like the previous ones--have been regarded over the years as basic source documents.

- These U.S. investigation teams also made use of data from numerous separate radiation monitoring surveys, soil and debris sampling programs, and other analyses conducted by Japanese scientists in the days and weeks immediately following the bombings. For example, from Tokyo Imperial University, Kyushu Imperial University, Kyoto Imperial University, Tokyo Institute of Physics and Chemistry, and other organizations, the following Japanese scientists were among those active in the initial surveys in 1945:

Takagi, Yamasaki, Sugimoto, Murati, Misonoo, Shinohara, Morita, Kohra, Masuda, Sakata, Nakane, Miyazaki. In some cases, copies of their reports were included in the above-mentioned U.S. reports. In other cases, they were published separately in Japan.

Some of the more extensive and pertinent of these early U.S. and Japanese reports are cited in the first section of "Selected References" at the end of this Fact Sheet.

Residual Radiation in Hiroshima and Nagasaki.

After the bombings there remained one area of low-level residual radioactivity in each city, and one area in the nearby vicinity of each city. The contamination in the cities themselves was caused by one mechanism, that outside the cities by another. The first type of residual radiation--which formed a roughly circular area around the hypocenter--was "induced radioactivity." The second type, which occurred downwind outside the city, was caused by "rainout" (a process similar to fallout). The following two sections describe each in turn.

Induced Radioactivity at the Hypocenters.

This pattern of residual radiation was created at the moment of detonation, when the high-intensity burst of neutrons from the bomb encountered atoms of normally non-radioactive elements in the soil and building materials (concrete, metal, tile, etc.) in the area beneath the detonation and caused them to become radioactive. Examples of elements in which radioactivity can be induced are aluminum, sodium, manganese, scandium, cobalt, and cesium. This induced radioactivity was of relatively low intensity, because of the relative scarcity of these elements. Furthermore, as in all radioactive materials, the intensity of radiation emitted continuously declined over time (that is, the elements became less radioactive). Many of these elements had short half-lives (the time required for the radiation intensity to be reduced from any given value to one-half that value). For example, aluminum-28 has a half-life of 2.3 minutes, sodium-24 has a half-life of about 15 hours, and manganese-56 has a half-life of about 2.6 hours. Because of these short half-lives, the decay in intensity of radiation in the relatively circular pattern of induced radioactivity around each hypocenter was relatively rapid.

Numerous experiments have been conducted over the years to verify the patterns of induced radioactivity measured at Hiroshima and Nagasaki. Nuclear weapons of comparable yield have been detonated at about the same altitudes at the Nevada Test Site, producing patterns of induced radioactivity quite similar to those measured in Hiroshima and Nagasaki. Likewise, Japanese roofing tiles, construction materials, and soil samples taken from Hiroshima and Nagasaki have been exposed experimentally to neutron

bombardment similar to that produced by the wartime bombs, and the results have been compared to those measured in the bombed cities. Thus the mechanism of induced radiation is well understood.

In Hiroshima, when the first occupation troops arrived in the vicinity about 60 days after the bombing (see section below on Hiroshima occupation), the intensity of this induced radioactivity near the hypocenter had decayed to negligible levels. Figure 5 is a reproduction of the Hiroshima outline map shown in Figure 1, with a typical contour of induced radiation overlaid upon it. The pear-shaped outine of dots around the hypocenter on Figure 5 shows the iso-intensity contour of 0.03 milliroentgen per hour.*

Three points might be mentioned to put this low-level residual radiation in context. First, it covers a relatively small area of the city around the hypocenter. Second, it is centered in the area of maximum physical destruction from blast and fire. As can be seen from Figure 2, virtually nothing was left standing in the area where residual radiation existed. Third, the residual radiation intensity was extremely low-level. For example, if this contour of 0.03 milliroentgen per hour is taken as an average value of induced radioactivity in the vicinity of the hypocenter at the time of the troops' arrival, an individual working in this area for an eight-hour day would be exposed to 0.24 milliroentgen per day (0.03 x 8). Radioactive decay would reduce this exposure rate each subsequent day, but if this decay is disregarded for ease of calculation, in a month this individual would be exposed to approximately 7.2 milli-roentgen (0.24 x 30). In a three-month period, which is a longer time than any U.S. military occupation unit remained in the vicinity of Hiroshima, the maximum total exposure of the individual working daily at the hypocenter would be about 22 milliroentgen (7.2 x 3). The dose received would be less than one two-hundredth of

---

*Three units are commonly used in describing radiation levels. The Roentgen is a unit of exposure, a measure of radiation energy in air. (A milliroentgen--the unit used in this paper--is a much smaller measure, equal to one-thousandth of a Roentgen.) The rad is a unit of absorbed dose, a measure of radiation energy deposited in the body. The rem is a unit of dose equivalent, which adjusts the absorbed dose (in rads) for the relative effectiveness of the particular radiation. For example, exposure of an individual to one Roentgen of gamma radiation results in a dose of approximately 0.65 rem at the center of the body. Today's Federal guidelines allow radiation workers to receive a dose of 5 rem per year, more in some cases. A millirem, the measure of dose used in this paper, equals one-thousandth of a rem. Thus, under national (and most international) standards today, a radiation worker is permitted to accumulate a dose of 5,000 millirem per year.

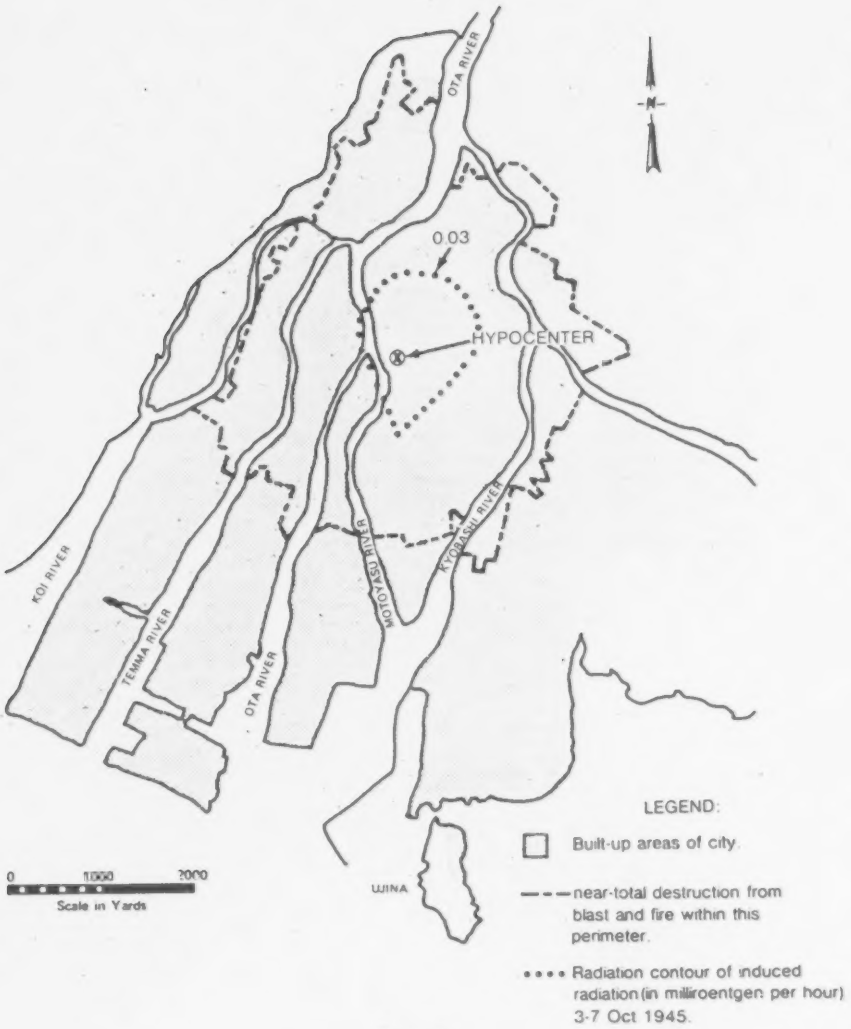

Figure 5

HIROSHIMA

today's allowable annual dose for radiation workers under Federal guidelines. It is also only a small fraction of the radiation dose each individual on earth receives annually from natural sources (cosmic and terrestrial radiation). For example, every resident of the U.S. receives a dose of about 100-400 millirem per year from naturally occurring radiation.

The maximum extent of the induced radiation at Hiroshima--that is, the circle of greatest diameter around the hypocenter at which any level of radioactivity above the natural background could be detected--was well inside the perimeter of near-total destruction shown by the dashed line on Figure 5. The highest intensity of radiation in the soil directly under the hypocenter at the time the occupation troops arrived in the vicinity was about 0.1 milliroentgen per hour. Thus, while there was residual radiation in Hiroshima, it covered a small area at the center of the physical devastation and its intensity--which was steadily declining--was so low as to be negligible.

At Nagasaki, when the main body of occupation troops entered the city 45 days after the bombing (see section below on Nagasaki occupation), the residual radiation pattern from induced radioactivity around the hypocenter was as shown by the small pear-shaped outline of dots on Figure 6. As in the case of Hiroshima, virtually no residue from the bomb reached the ground in the vicinity of the hypocenter, and the low-level residual radioactivity that was measured by the numerous teams of Japanese and U.S. scientists was induced in normally non-radioactive substances by the intense burst of neutrons released at the instant of the bomb's detonation.

The area of induced radioactivity was somewhat smaller than that at Hiroshima. The contour shown is an iso-intensity line of 0.03 milliroentgen per hour. (Refer to the previous paragraph on induced radioactivity in Hiroshima for a discussion of the meaning and import of this very low level of radioactivity.)

The outermost perimeter of measurable induced radioactivity at Nagasaki was still well within the area of total destruction; and the "hottest" spot in the soil at the hypocenter itself had an intensity of less than 0.1 milliroentgen per hour. Thus, as in the case of Hiroshima, the only area that showed any radioactivity whatsoever at the time of arrival of the occupation troops was very small in size, was located at the center of the area of maximum destruction from blast and fire, where little or nothing was left standing (see Figure 4), was of such a low level as to be virtually negligible, and was decaying to a lesser intensity every day.

"Rainout" Radioactivity Downwind of the Cities.

In the vicinity of each city there was a second pattern of residual radioactivity produced by a different mechanism. As the radioactive cloud was borne downwind, rainshower activity within an

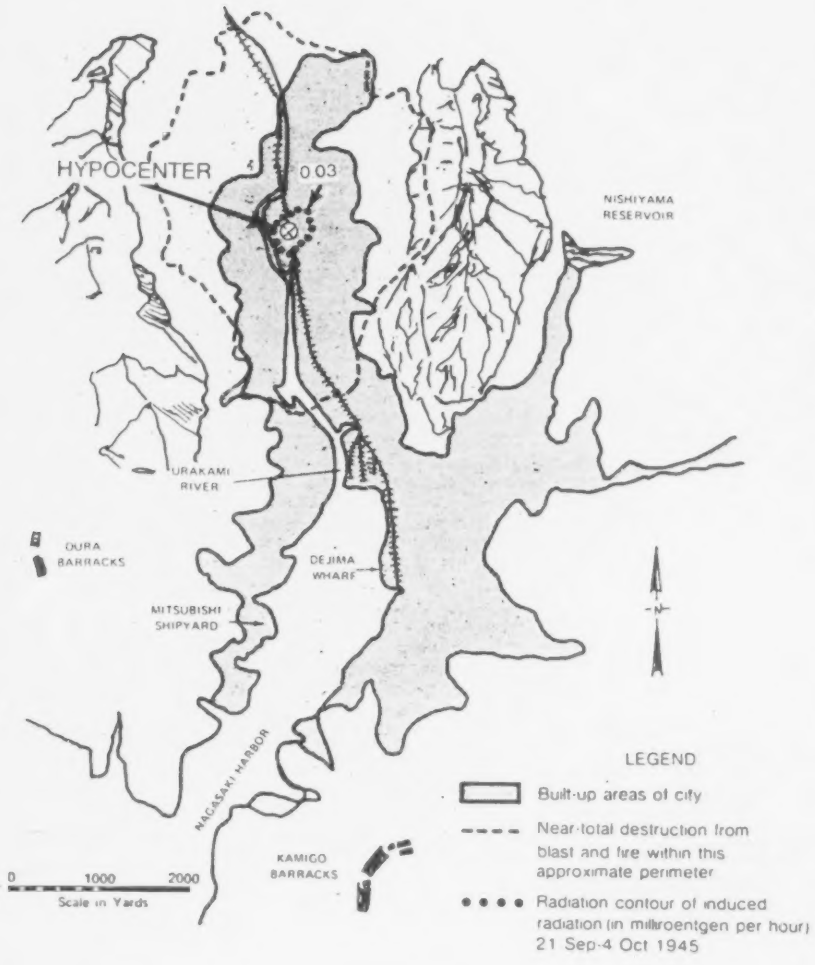

Figure 6

NAGASAKI

hour after the detonation caused fission products and unfissioned residue of the bomb to be carried to earth in a manner similar to fallout. This "rainout" produced a small pattern of radioactivity to the west of Hiroshima, near the village of Takasu; and a somewhat larger area to the east of Nagasaki, in the vicinity of the Nishiyama Reservoir.

The fission products and unfissioned residue of a nuclear weapon, when deposited on the ground, contain a mixture of hundreds of different radioisotopes, each decaying at its own rate according to its half-life. The overall decay rate of the entire mixture is very rapid. For several months after the detonation, this drop in radioactivity occurs at the rate of $T^{-1.2}$, where "T" is time in hours. As a rough rule-of-thumb, this means that if you start with a given intensity of radioactivity one hour after the detonation (H + 1), seven hours later the intensity of radiation would have dropped to one-tenth its former level. Two days after the detonation, the intensity of radiation would have decayed to about one-hundredth of its H + 1 value. Two weeks after the detonation the intensity of radioactivity in the fallout pattern would have dropped to one-thousandth of its H + 1 value. Thus, since the occupation troops arrived in the vicinity of Hiroshima more than eight weeks after the bombing, and in Nagasaki more than six weeks after that detonation, the intensity of the residual radiation in the Takasu area near Hiroshima and in the Nishiyama area near Nagasaki had dropped by a factor of many thousands from its intensity one hour after the bombings.

The small rainout pattern to the west of Hiroshima is shown in Figure 7 by an iso-intensity contour of 0.03 milliroentgen per hour (the oval of "x's"). At the time the occupation troops arrived in this part of Japan, the "hottest" spot in the center of this oval had an intensity less than 0.05 milliroentgen per hour.

The pattern of residual radioactivity caused by rainout near the Nisniyama Reservoir, east of Nagasaki, is shown in Figure 8. The area here is somewhat larger, and it has slightly greater intensity. The contour of "x's" shown is the approximate outline of the 0.1 milliroentgen per hour perimeter. Outside of this contour, the intensity falls to background levels very quickly in the reservoir area and in the direction of Nagasaki. Inside this contour, the intensity rises gradually to reach about one milliroentgen per hour at the "hottest" spot at the time of the troops' arrival.

Thus, of the four patterns of measurable residual radioactivity remaining in Japan at the time of arrival of the occupation troops, the most significant was in the vicinity of the Nishiyama Reservoir outside Nagasaki. It was also the only one of the four which included slight levels of plutonium in the radioactive mixture. This area, however, was remote and rugged, characterized

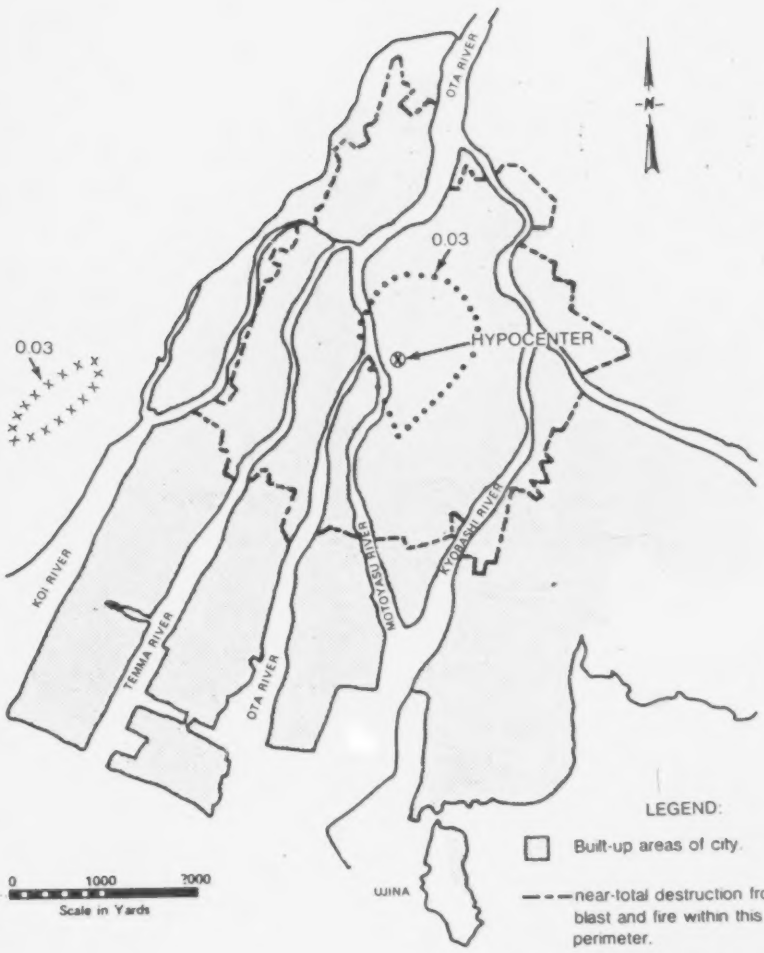

Figure 7

HIROSHIMA

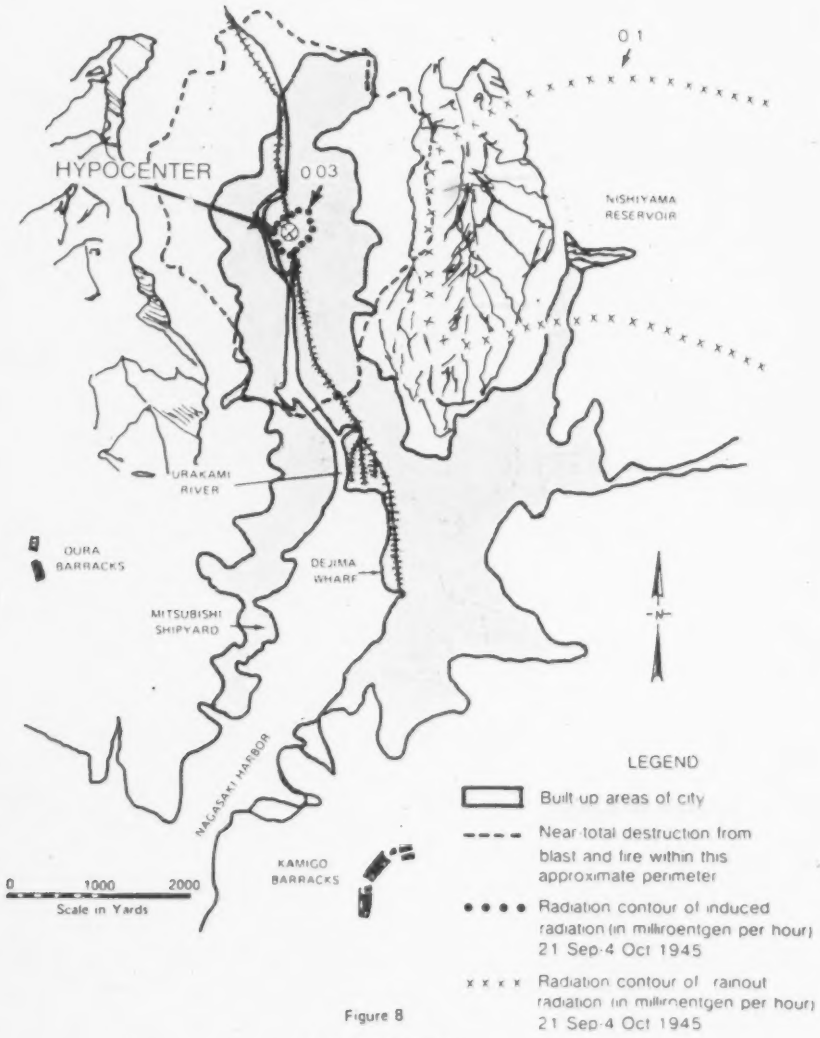

Figure 8

NAGASAKI

by steep slopes and heavy forests, with few trails or roads and even fewer buildings. Thus the Japanese population of the area was sparse, there were no occupation forces stationed in the vicinity, and there was little need for military patrols into the area.

One final comment should be made about the intensity of residual radioactivity--applying to the two patterns at Hiroshima and the two at Nagasaki. In addition to the rapid natural decline in radiation intensity through radioactive decay, the reduction in contamination was aided by the heavy rains that fell over southern Honshu and Kyushu that fall. In fact, Hiroshima experienced a severe typhoon in September 1945. Between the bombings and the time occupying troops arrived in the vicinity, approximately 62 centimeters (24 inches) of rain had fallen in Hiroshima, and 82 centimeters (32 inches) in Nagasaki. The heavy rainfall continued during the occupation, and by 1 November the cumulative total since the bombing had been 91 centimeters (36 inches) in Hiroshima and 122 centimeters (48 inches) in Nagasaki. This heavy rainfall washed away some of the residual radioactivity.

The Occupation of Japan.

As soon as the bombs were dropped and the Japanese gave indications of accepting the Allies' surrender terms, planning for the occupation of Japan was carried out intensively. The mission of the occupation troops was to establish control of the home islands of Japan, ensure compliance with the surrender terms, and demilitarize the Japanese war machine.

The mission did not include the "cleanup" of Hiroshima, Nagasaki, or any other areas, nor the rebuilding of Japan. These functions were carried out by the Japanese. In some cases, U.S. occupation forces had to repair a specific building for interim use, make an airfield operational, or clear a specific road for access; however, even in these cases, Japanese labor was generally used.

The occupation of the western portion of Honshu Island (which contains Hiroshima) and the southern Japanese islands of Kyushu (where Nagasaki is located) and Shikoku was the responsibility of the Sixth U.S. Army, which was composed of the I and X Army Corps and the V Amphibious Corps (Marines). Each Corps was made up of three divisions and supporting units. The occupation force for this portion of Japan totalled some 240,000 troops.

The basic organization chosen to accomplish the occupation mission was the infantry regiment, and the concept was to assign a regiment to each prefecture (similar to a U.S. county) within

Japan. The regimental commander was responsible for taking control of all Japanese military installations in his area, and for disposing of all weapons, ammunition, and military equipment (by destruction; by scrapping and returning to Japanese civil control; by shipping to the U.S. for training use, trophies, souvenirs; etc.). He was responsible for supervision of demobilization of the Japanese armed forces, for security of materiel throughout his assigned area, and for ensuring compliance with the surrender terms. In general, the mission was relatively easy to carry out because the Japanese were compliant and cooperative. Japanese military commanders were helpful and thorough in submitting lists of all installations and inventories of material, as well as in carrying out demobilization. Japanese police were effective in maintaining order among the Japanese and in providing laborers for heavy work.

The occupation situation in Hiroshima was quite different from that in Nagasaki, principally because the excellent harbor at Nagasaki had not been extensively mined and was immediately usable. Thus, Nagasaki became a primary staging area for insertion and withdrawal of occupation forces. This was not the case with Hiroshima, whose harbor had been heavily mined and thus was unusable for an extended period. Because of this, more occupation troops passed through Nagasaki, and more were stationed in its vicinity, than was the case for Hiroshima.

Another difference was that the occupation force at Hiroshima was composed primarily of Army troops, while that at Nagasaki was composed mostly of Marine Corps units, with small supporting Navy and Army elements.

As a general observation, it can be stated that throughout the occupation of Japan the troop situation changed continually. At the time of their initial assignments, units were virtually on a wartime footing. It quickly became apparent that this high troop density was not needed, because of the total cooperation of the Japanese. Additionally, pressures for demobilization of U.S. troops increased rapidly, and there was a desire to reduce troop commitments as rapidly as possible. "High point men"--those with longest service and thus most deserving of early discharge--were returned to the United States, and unit strengths were kept at adequate levels by reassignment of low point men between units. As entire units were deactivated or returned home, the area of responsibility of nearby units expanded rapidly. As some areas in Japan were stablized more rapidly than others, units were transferred from one assignment and location to another on short notice. The overall strength of the U.S. occupation forces dropped dramatically each month. Thus the duration of assignment of any individual or any unit in the occupation forces was quite short.

Hiroshima Occupation.

The occupation of western Honshu was assigned to the I and X Corps of the Sixth Army. Within the X Corps, responsibility for the prefectures in the vicinity of Hiroshima and Kure (about 11 miles southeast of Hiroshima) was initially assigned to the 41st Division. On 6 October 1945 units of the 41st Division landed at Hiro, about 15 miles southeast of Hiroshima, and secured the Kure Naval Yard. On 7 October the 186th Infantry Regiment of the 41st Division landed, and the Regiments's 2nd Battalion established headquarters and billets in Kaidaichi, about 5 miles southeast of the center of Hiroshima (well off the map in Figure 7). Since the city of Hiroshima had been almost totally destroyed by the bomb, no major units were stationed there throughout the occupation. One of the first actions the 186th Infantry Regiment carried out--on 7-8 October--was to set up a roadblock in the vicinity of Kaidaichi to prevent entry into Hiroshima by military personnel.

During the next two months, units of the 186th Infantry Regiment conducted reconnaissance patrols and other specific daily assignments throughout its area of responsibility, which included the city of Hiroshima. Thus it is reasonable to assume that individuals of the 186th Infantry Regiment made occasional patrols into the destroyed area of Hiroshima. Additionally, it seems reasonable to assume that individuals from any nearby units of the 41st Division who were able to obtain leave papers or passes might have made brief sightseeing trips there to view the destruction caused by the bomb. (On a typical patrol or sightseeing trip to the center of the bomb-devastated area, the maximum dose received should be less than 0.1 millirem.)

In December 1945 the 41st Division (including the 186th Infantry Regiment) was deactivated; and individuals were either returned to the United States for discharge or transferred to other units elsewhere in Japan.

Upon deactivation of the 41st Division the 24th Division took over their responsibilities in the vicinity of Hiroshima. The 34th Infantry Regiment of the 24th Division relieved the 186th Regiment of the 41st Division, and units of the 34th moved into the rehabilitated buildings, hotels, and private residences in Kaidaichi originally used by units of the 186th. The responsibilities of the 34th Regiment covered such a wide geographic area that eventually only one company--"G" Company of the 2nd Battalion--was stationed in the vicinity of Hiroshima. The Company was quartered in Ujina, a small island in the delta area just south of the city (see Figure 7).

On 6 March 1946 the 34th Regiment of the 24th Division was relieved by an Australian Infantry Battalion of the British Commonwealth Occupation Forces, and the U.S. occupation in the vicinity of Hiroshima came to an end.

Nagasaki Occupation.

The occupation of Nagasaki involved many more troops, and its history is much more extensively documented in Marine Corps records. Only those aspects pertaining to the issues at hand will be summarized here.

Prior to the actual occupation, two operations took place in Nagasaki during the period 11-13 September 1945. First, Nagasaki was used as a processing point for the repatriation of former prisoners-of-war who had been held in Japanese prison camps on the island of Kyushu. During this twelve-day period more than 9,000 Allied former POWs were moved through Nagasaki for evacuation to hospital ships awaiting in the harbor. A POW recovery team and a detachment of Marine guards were ashore in Nagasaki during this twelve-day period to accomplish this function. The harbor at Nagasaki was ideal for this purpose because of its location, its natural shelter, and its deep water. In spite of the devastation to the northern portion of the city, Nagasaki was feasible for use because the relatively great distance from the hypocenter to the waterfront (see Figure 8) caused the harbor area (docks, cranes, warehouses, buildings) to escape most of the destructive effects of the bomb and to be completely free from radioactivity.

Second, a small advance party of the occupation force (about 12 personnel) arrived in Nagasaki on 16 September and remained until the main force arrived on 23 September 1945.

The occupation of the Nagasaki area was assigned to the 2nd Marine Division, a unit of the V Amphibious Corps. The Division and its supporting units had a strength of about 20,000 personnel at the beginning of the occupation. The four principal combat units of the 2nd Marine Division were the 2nd, 6th, and 8th Regimental Combat Teams (RCTs) and an Artillery Group composed principally of the 10th Marine Regiment. The other units in the 2nd Marine Division were a Headquarters Battalion, Service Troops, an Engineer Group, a Tank Battalion, an Observation Squadron, and some smaller organizations.

Upon landing, the 8th RCT and the 10th Marine Regiment deployed immediately to Isahaya, some 10 miles north of Nagasaki. The 8th RCT had no involvement in the occupation of Nagasaki; and the 10th Marine Regiment did not return to Nagasaki until November.

The other elements of the 2nd Marine Division, numbering upwards of 10,000, debarked in the vicinity of the Dejima Wharf and the Mitsubishi shipyard (see Figure 8) and established command posts and billets in the vicinity. For example, the 2nd RCT landed on 23 September at Dejima Wharf, was billeted in the Kamigo barracks (see Figure 8), and established a command post at that location. The Team's zone of occupation included the east side of Nagasaki harbor and most of the nearby prefecture east of the Urakami River. The 6th RCT landed on 23 September in the Mitsubishi shipyard area, established a command post in that area, and was billeted in barracks at Oura (see Figure 8). The Team's zone of occupation included the west side of Nagasaki harbor and most of the nearby prefecture west of the Urakami River.

Over the next weeks and months there was a steady drawdown in the strength of the Division, as high point men were sent to the U.S. for discharge. There were also reassignments of areas of responsibility, as the 2nd Division took over areas that had previously been assigned to other units which departed. The 2nd RCT left Nagasaki in early November, and the 6th RCT departed in December 1945 along with two-thirds of the Engineer Group. The Headquarters Battalion and portions of the Service Troops left the Nagasaki area in January 1946. The Tank Battalion, which had landed and remained in Fukahori, about 9 miles southeast of Nagasaki, arrived in Nagasaki in November and departed in December 1945. The 10th Marine Regiment returned to Nagasaki from Isahaya in November 1945. This Regiment initially took over the responsibilities of the 2nd RCT, and soon the responsibilities of the 6th RCT as well.

The final units of the 2nd Marine Division--portions of the Service Troops, the last of the Engineer Group, and the 10th Marine Regiment--departed Nagasaki in June 1946, and the U.S. Marine Corps occupation of Nagasaki came to an end.

The strength of the 2nd Marine Division in Nagasaki is estimated to have remained above 10,000 for about the first three months of the occupation, through November 1945. For the next three months, through February 1946, Division strength in this area averaged about 5,000-7,000. For the last four months of the occupation, through June 1946, Division strength in Nagasaki was 3,000-4,000.

The specific billet locations of all units of the Division have not yet been precisely located, but without doubt they were in areas well clear of the hypocenter. Not only did the massive destruction of the blast and fire make that area uninhabitable (see Figure 4), but historical documentation shows that that area was avoided. For example, Volume V of the Marine Corps' "History of the U.S. Marine Corps Operations in World War II" states: "At 1300

on 23 September, the Second and Sixth Marines landed simultaneously on the east and west sides of the harbor. The two regiments moved out swiftly to occupy the city and curtain off the atom-bomb-devastated area."

Unquestionably there would have been occasions during the Nagasaki occupation on which patrols or other groups entered the areas of residual contamination to carry out specific missions. Also--as in the case of Hiroshima--it is reasonable to assume that individuals from units stationed nearby, who could obtain leave papers or passes, would have made brief sightseeing trips to the hypocenter to view the devastation caused by the bomb. (The maximum dose received on such a sightseeing trip should be less than 0.1 millirem.)

The U.S. Navy played a major role in transporting the Marines to Nagasaki and in evacuating POWs, but its role ashore was limited. During September 1945 some 136 Navy ships with about 34,000 crewmen arrived in Nagasaki harbor, generally docking at Dejima Wharf. Typical duration in port was three days, with cargo offload proceeding at maximum pace. Only a few ships, such as the hospital ship HAVEN (which was in port for 2-3 weeks), stayed longer. Ship traffic declined in subsequent months, with only 27 ships arriving in October.

Approximately 1100 Navy hospital corpsmen, a small number of medical and dental officers and chaplains, and an 800-man Construction Battalion, went ashore in Nagasaki assigned to 2nd Marine Division units. These Navy personnel left Nagasaki over the subsequent months--by reason of individual discharge or unit reassignment--at much the same rate as the Marines.

Atomic Bomb Casualty Commission.

Before proceeding to dose reconstructions, it is appropriate to discuss the remarkable research organization formed by Japanese and U.S. scientists shortly after the war and continuing to this day. In the previous section entitled "Early Radiation Surveys" it was mentioned that three U.S. and many Japanese teams of scientists made detailed, immediate surveys of the radiation environment and the effects of radiation upon the Japanese residents. These surveys commenced immediately after the bombings and continued for several months. Soon, a Japan-U.S. Joint Commission was organized, and detailed scientific investigations of the acute effects of the bombings were carried out. Based on the success of this early joint effort, President Truman in 1946 directed the National Research Council of the National Academy of Sciences to undertake a long-range study of the biological and medical effects of the atomic bomb on man. In response, the Academy organized "Atomic Bomb Casualty Commission (ABCC)" to continue this effort, commencing in 1947. The Japanese National Institute of Health (JNIH)

began participation in the ABCC program in 1948, and it has continued to this date. In 1975, after 27 years of effective research, the Organization was re-established as the "Radiation Effects Research Foundation" (RERF), an incorporated foundation, managed and financed equally by the Governments of Japan and the U.S. The National Academy of Sciences continues directing RERF activities for the U.S.

The objectives of the ABCC/RERF are to conduct extensive, continuing, long-term studies into the effects of exposure to ionizing radiation in the survivors of the Hiroshima and Nagasaki bombings. To conduct this research, the ABCC/RERF maintains permanent research organizations in both Hiroshima and Nagasaki made up of medicine, clinical, pathology, radiology, statistics, and medical sociology departments. Over the past 32 years, the ABCC/RERF has published and distributed well over a thousand technical reports, and has made its findings even more widely available through publication in both English and Japanese versions of numerous medical and scientific journals.

The information thus published constitutes the most extensive and authoritative data available for the determination of radiation effects of the bombings, and of the overall risks of radiation-induced malignancy. Representative citations to this extensive body of scientific data are included under "Selected References" at the end of this Fact Sheet.

In summary, few world events have been as thoroughly documented at the time and as intensively and continuously studied by as many different groups of scientists as the atomic bombings and related radiation exposures at Hiroshima and Nagasaki. Thus--thanks to the ABCC/RERF--the patterns of residual radioactivity in Hiroshima and Nagasaki are well understood, and it is this large body of scientific material which is used by DNA and the Government in making current assessments of radiation-related issues.

Dose Reconstructions.

In order to be responsive to veterans, the VA, and others who are interested in the total dose received by veterans of the Hiroshima and Nagasaki occupation, DNA, with contractor support, has performed detailed dose reconstructions for the occupation forces. These dose reconstructions are based upon: (1) The patterns of residual radioactivity which were measured, documented, and published shortly after the bombings; (2) the extensive review and analysis of this residual radioactivity in the ensuing decades by the ABCC/RERF; and (3) the documented arrival and departure dates of each Army and Marine Corps unit which operated in the vicinity of Hiroshima and Nagasaki.

These dose reconstructions take into account: (1) The external dose of gamma radiation which would have been received by anyone venturing into the four areas of residual contamination described in the earlier sections of this paper; (2) the possible internal dose of radiation that might have been received by anyone inhaling dust containing contaminated particles; and (3) the possible internal dose that might have been received by anyone drinking water containing dissolved or particulate radioactivity from the Nishiyama Reservoir.

Because we cannot track the exact movements of every individual for each day he was in Japan, it is necessary to base the dose reconstructions upon a "worst case" analysis. In this type of analysis, one makes assumptions about movements, assignments, living patterns, etc. which would maximize the dose received. Since the dose reconstructions involve quite a number of these assumptions, all of which employ not the "best estimate" but rather the extreme end of the range of probable actions, the result is not the dose that the individual with the highest exposure received, but rather a hypothetical extreme which in all probability no individual even approached.

Some typical assumptions used in making these "worst case" dose reconstructions are as follows:

- It is assumed that the individual was the first man of his unit to arrive in Hiroshima or Nagasaki and the last man to depart.

- It is assumed that the individual was assigned daily duties--seven days a week, from day of arrival to day of departure--at the "hottest" spot in the hypocenter or in the downwind "rainout" area.

- It is assumed that the individual worked a full eight-hour workday in that "hottest" area of the hypocenter (four hours per day for the "rainout" areas outside the built-up portion of the city, where there were no military activities of interest and patrol travel time was greater).

- For inhaled dose, it is assumed that aerodynamically resuspended particles had a size distribution that was optimum for inhalation and retention in the body.

- For inhaled dose, it is assumed that dust resuspension factors were those appropriate to desert areas.

- For ingested dose (Nagasaki), it is assumed that all fission products reaching the Nishiyama Reservoir were soluble.

For ingested dose (Nagasaki), it is assumed that all drinking water for an individual during his tour in Japan came from the Nishiyama Reservoir.

Using these, and similar, "worst case" assumptions, the dose reconstructions show that the maximum radiation dose any member of the U.S. occupation forces in Japan could have received--considering his external dose, his inhaled dose, and his ingested dose--was less than one rem.

It should be reemphasized that these "worst case" dose reconstructions do not mean that any individual received close to one rem. Rather, the highest dose received by any individual in the occupation force was more likely in the tens of millirem; and the average dose received by individuals in the Hiroshima and Nagasaki occupation forces was probably very close to zero.

The reasons why no individual would have approached the upper end of the "worst case" dose reconstructions of "less than one rem" can be seen in the following observations about the assumptions for the dose reconstructions:

- Divisions, regiments, etc., were assigned responsibilities throughout the prefectures, areas many times larger than the area of the cities; however, the dose reconstructions assumed the individual was assigned to the cities themselves.

- Even within the cities, less than one percent of the built-up area of each city was contaminated at a dose rate greater than 0.1 milliroentgen per hour; however, the dose reconstructions assumed the individual spent his full workday every day within that one percent of the city's area.

- Related to the above assumption is the fact that there would have been no reason for a member of the occupation forces to be assigned duties at these "hot spots." Figures 2 and 4 suggest how pointless such an assignment would have been at the hypocenters; and there were no activities going on in the "rainout" areas that would have caused the assignment of an individual. However, the dose reconstructions assume the individual was at the "hot spots," regardless.

- Even should patrols have been ordered to these "hot spots" for specific tasks, there would have been no rationale for assigning full eight-hour (or four-hour) workdays in these areas; however, the dose reconstructions assume the full-time assignment.

- Specific patrol and guard assignments would undoubtedly have been rotated among unit members; however the dose reconstructions assume the same individual is assigned each day to the "hot spot."

- If contaminated particles were resuspended with dust, many particles would be too large (in micron diameter) for inhalation; however, the dose reconstructions do not reduce the inhaled dose for this factor.

- With one or two minor, brief exceptions, there is no indication of U.S. occupation forces being involved in, or in the vicinity of, significant dust-producing activity; however, the dose reconstructions assume that this occurred continuously.

- The torrential rains, and the resulting ever-present mud (which figures prominently in historical accounts), would have inhibited dust formation; however, the dose reconstructions assume desert conditions.

- A significant portion of any fission products which reached the Nishiyama Reservoir would have been insoluble, and thus would have been deposited in the reservoir sediment or trapped in the filtration process; however, the dose reconstructions do not reduce the ingested dose for this factor.

- The Marine troops at Nagasaki imported their drinking water from Saipan for the first three weeks; however, the dose reconstructions assume they drank local water from the time of their arrival until their departure.

- Five or six drinking water systems supplied Nagasaki (four or five reservoirs and one river system), and only one of these, the Nishiyama Reservoir, may have been slightly contaminated; however, the dose reconstruction assumes that all Nagasaki troops got all their drinking water from this contaminated reservoir.

In summary, after the most detailed research and meticulous dose reconstruction--using numerous assumptions which would maximize dose--no areas of concern or significant doubt can be identified, and the firm, well-substantiated conclusion is that the radiation doses received by members of the Hiroshima and Nagasaki occupation forces were negligible.

Health Effects of Radiation Exposure.

Over many decades, researchers of many nations have carried out extensive research into the health risks caused by ionizing radiation. This research has been so voluminous, detailed, and intensive that more is known about radiation and its health effects than about any other carcinogen. Numerous eminent scientific bodies, national and international, periodically review all known research and issue detailed scientific reports which summarize the current views of medical science on ionizing radiation injury.

Among these distinguished bodies are the International Commission on Radiological Protection (ICRP); the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR); the National Council on Radiation Protection and Measurements (NCRP); the National Academy of Sciences' Committee on the Biological Effects of Ionizing Radiation (BEIR); and the ABCC/RERF Foundation mentioned earlier.

These organizations--and the great majority of individual scientists--are in close agreement on the major aspects of the health effects of ionizing radiation. They differ to a small degree on some of the fine points. The consensus can be expressed as follows. It is known that exposure to high levels of ionizing radiation (e.g., 100 rem) causes adverse health effects. Although science does not have proof that exposure to low levels of ionizing radiation (e.g., a few rem) causes adverse health effects, it is assumed that this is so, and that the effects are proportional to the dose. The only type of adverse health effect believed to be caused by low-level exposures to ionizing radiation is a slight increase in the incidence of cancers that occur normally. This assumed increase is so small it has never yet been measured, thus there are slight disagreements as to its exact magnitude among the various distinguished scientific groups mentioned above.

A numerical example may serve to put this in context. This example is from the 1977 UNSCEAR report, however, it is quite similar to the numerical estimates of the other distinguished bodies. In any typical group of 10,000 Americans, our national cancer statistics tell us that about 1,600 will eventually die of cancer. These are "normal" cancer deaths, not caused by exposure to excess man-made ionizing radiation. This estimate of normal cancer deaths is so approximate that a variation by 50 or even 100 would not be regarded as abnormal. Thus a range of cancer deaths from about 1,500 to about 1,700 out of a typical group of 10,000 individuals would be regarded by medical science as being normal. Now, if each of the 10,000 individuals is exposed to one rem of man-made ionizing radiation, medical science assumes that statistically there will be one additional cancer death over the lifetimes of the 10,000 individuals. Thus if a variation in cancer deaths from about 1500 to 1700 is regarded as normal, and if the radiation exposure of each of the 10,000 individuals to one rem causes a statistical increase of only one death, it is easy to see why medical science has difficulty in identifying this effect with precision.

This numerical example also shows how minuscule is the health risk which members of the Hiroshima and Nagasaki occupation forces might face. Using Nagasaki as an example, more than 10,000 Marines were stationed in the vicinity and had the opportunity for some slight radiation exposure. The "worst case" exposure for any of

these individuals is less than one rem. However, the average exposure (which is the important factor in health risk estimates), is in the very low millirem range. Thus in statistical terms, the expected number of cancer deaths from among the 10,000 individuals engaged in the Nagasaki occupation is possibly one-hundredth of one cancer death. At the same time, however, approximately 1,600 "normal" cancer deaths would be expected over the lifetimes of these 10,000 veterans. Thus the added risk from radiation exposure during the Japan occupation is so small as to be negligible--far less than many other risks which we all readily accept as a normal part of life.

One specific health risk deserves mention because it has received some recent publicity. This concerns a type of bone cancer known as "multiple myeloma." This is a fairly rare form of cancer which strikes late in life. Medical science believes multiple myeloma has a borderline relationship with exposure to ionizing radiation. That is, there are some indications that exposure to radiation may increase the risk of this disease, but science cannot yet be sure.

The recent concern has been based on the fact that four veterans of the Nagasaki occupation have been diagnosed as having multiple myeloma. This does not appear to represent an abnormal incidence of this disease. The following statistics from the National Cancer Institute are pertinent. If you start with 10,000 males, age 25, in 1945 (which approximates the Nagasaki Marines); then today, in 1980, about 7.7 deaths from multiple myeloma should have already occurred, based on normal statistics. In the next decade, the number of normal deaths from multiple myeloma from within this group can be expected to increase rapidly. By 1985 the total deaths should be about 12.5, and by 1990 about 19.3. Thus based on our research to date, the four multiple myeloma cases that are known are less than the number that would have been expected for a normal, non-radiation-exposed group of this age and size.

Strong support for this conclusion that Hiroshima-Nagasaki radiation exposures are not causing increased multiple myeloma comes from the extensive research of the ABCC/RERF. During the more than three decades since the bombings, researchers have maintained close follow-up on Japanese citizens who were in or near the cities at the time of the detonations. A 1979 ABCC/RERF technical report shows that of almost 33,000 Japanese who received a dose of one rem or less, no increase in multiple myeloma has occurred.

A final point might be made about health risk from radiation dose. Man has evolved through the ages in constant exposure to ionizing radiation. Cosmic radiation from the sun, and terrestrial radiation from naturally radioactive elements in the earth, bathe each of us continually, every day of our lives, in ionizing radia-

tion. Our dose levels vary somewhat according to location. In the U.S., these range from a low of about 100 millirem per year (e.g., Louisiana) to a high of about 400 millirem per year (e.g., Colorado). The negligible health risk caused by radiation exposures at these low levels can be seen by the fact that researchers have never been able to detect any increased risk of cancer in locations where the annual radiation dose is four times greater (400 millirem rather than 100 millirem), in spite of having a vast data base.

Conclusions.

In summary, DNA's extensive research over the past ten months has disclosed no basis for concern by veterans of the Hiroshima and Nagasaki occupation force over an increased risk of adverse health effects.

The extensive radiation measurements and soil sample analyses taken by numerous Japanese and U.S. scientists in the weeks following the bombings are still available. These readings and subsequent radiation measurements and sampling, have formed the basis for intensive research over the past 35 years by Japanese and U.S. scientists of every aspect of the bombings and the radiation aftereffects. The Japanese and U.S. Governments--with the National Academy of Sciences managing the U.S. participation--have supported, stimulated, and advanced this research, until the radiation aspects of the bombings and the related health effects are one of the most thoroughly researched topics known to science.

Likewise, the history of the U.S. occupation of Japan is well documented in Army, Navy, and Marine Corps archives. It is known which units were present, when they arrived, where they were stationed, what their missions were, and when they departed.

From the above data, detailed technical dose reconstructions can determine the maximum possible radiation doses that might have been received by any individuals. Using all possible "worst case" assumptions, the maximum possible dose any individual serviceman might have received from external radiation, inhalation, and ingestion is less than one rem. This does not mean that any individual approached this exposure level. In fact, it is probable that the great majority of servicemen assigned to the Hiroshima and Nagasaki occupation forces received no radiation exposure whatsoever; and that the highest dose received by anyone was a few tens of millirem.

As regards health effects of this dose, all distinguished national and international groups of scientists whose views are regarded as authoritative in the field of ionizing radiation injury agree that the health risk from a dose such as this is negligible--so small statistically that it cannot be expressed in meaningful terms.

While these well-established facts appear quite conclusive, nevertheless DNA is continuing its research into all aspects of the Hiroshima-Nagasaki occupation.

Fact Sheet

dna

Defense Nuclear Agency
Public Affairs Office
Washington, D.C. 20305

10 January 1983

Subject: Nuclear Test Personnel Review (NTPR)

Background of NTPR Program.

Between 1945 and 1962, the Atomic Energy Commission (AEC) carried out some 235 atmospheric nuclear tests, principally in Nevada and the Pacific Ocean. An estimated 220,000 Department of Defense (DoD) personnel, military and civilian, were involved in this testing and many received low-level ionizing radiation exposures in the performance of various activities. Because the exposures generally were well within established radiation exposure limits, there was no reason to expect any increased health risk.

The first indication that former test participants might be experiencing adverse health effects possibly related to radiation exposure at the tests occurred in 1977. The Centers for Disease Control (CDC), as a result of its investigation of a leukemia case involving an individual who had participated in Shot SMOKY at the Nevada Test Site in 1957, became interested in the health status of all personnel who had been present at that shot. By late 1977, a DoD ad hoc committee, working together with CDC, had reconstructed a list of approximately 3,200 DoD personnel who were at or near the Nevada Test Site on the day of the SMOKY test and determined that some eight leukemia cases had occurred among them. CDC calculations indicated the expected incidence of leukemia would be three to four cases. CDC undertook an epidemiological study of these personnel and subsequently identified an additional leukemia case. It should be noted that the cause of the leukemias has not been determined to be related to radiation received at the test. In addition, no increased mortality from other forms of cancer has been observed in this group and the total number of deaths from all causes is essentially what would be normally expected.

Responding to this initial indication of a possible health problem, DoD, in December 1977, began a program of wide-ranging actions on behalf of the atmospheric nuclear test participants. The Defense Nuclear Agency (DNA) was appointed DoD's Executive Agent for this effort. The Nuclear Test Personnel Review (NTPR) program was established by DNA to carry out these responsibilities.

Scope of NTPR Program.

The Nuclear Test Personnel Review Program specific tasks are to:

- Compile a roster of the DoD personnel involved in the atmospheric nuclear tests.
- Develop a history of each atmospheric nuclear event that involved DoD personnel.
- Declassify all possible nuclear test related source documents which formerly bore a security classification.
- Provide estimates of atmospheric test radiation doses — both as a check on film badge readings and as a substitute for them in those cases where badges were not worn or readings were not recorded or are not retrievable.
- Establish personal contact with as many test participants as possible.
- Identify those individuals who received a higher radiation dose than those doses recommended under current Federal guidelines for radiation workers, notify those individuals of their dose

und offer them free medical examinations at Government hospitals.

• Sponsor, in conjunction with the Department of Energy (DOE), an independent mortality study by the National Academy of Sciences (NAS) of test participants selected by the NAS.

• Carry out a detailed research program, in conjunction with the on-going NTPR Program, to recover all data pertaining to possible radiation exposure of U.S postwar occupation troops at Hiroshima and Nagasaki, Japan. (This item was added to the original NTPR tasks in 1979 when concerns arose that veterans of the postwar occupation of those cities might be experiencing adverse health effects. Thus, since the Autumn of 1979, DNA has carried out a detailed research program to recover from records, historical documents, and interviews all possible data pertaining to the possible radiation exposure of those occupation troops.)

• Provide assistance to the veteran, the Veterans Administration (VA), and other organizations by doing individual research and by providing as complete data as possible on individual participation and radiation doses.

The overall NTPR effort is directed by the Defense Nuclear Agency, Washington, D.C. An NTPR team in each military service conducts detailed research into that service's participation in the atmospheric nuclear test program. A separate team at DNA's Field Command in Albuquerque, New Mexico has responsibility for research of records concerning DoD civilian employees and directs research into test participation by the former Armed Forces Special Weapons Project, a key test entity. In addition, DNA employs several contractors to provide specialized supporting services. The program has now been underway for five years, and about two more years will be required to complete the research. All phases of the NTPR program are being pursued on a high-priority basis, with adequate manpower (about 170 man-years per year) and funding (over $6 million per year). Its completion time is governed by the fact that necessary data are spread among hundreds of repositories and contained in tens or hundreds of thousands of documents.

NTPR Program Accomplishments

• First, the NTPR program has conducted most of the extensive research necessary to retrieve every possible bit of data about personnel participation and radiation exposure from records, archives, repositories, files, and other sources throughout the U.S. in order to piece together a coherent, personnel-oriented history of the atmospheric test program. The historical volumes (organized by series and shot, showing which organizations were there, what these organizations were doing, what radiological safety precautions were taken, what radiation dose levels were present, and other information) will be distributed to over 700 locations (including many public libraries) throughout the U.S. The order of publication of these historical reports is:

CONUS Operations	Actual/Projected Publication Date	Oceanic Operations	Actual/Projected Publication Date
PLUMBBOB (1957)	Oct 81	WIGWAM (1955)	Oct 81
TEAPOT (1955)	Mar 82	CASTLE (1954)	Apr 82
UPSHOT-KNOTHOLE (1953)	Apr 82	ARGUS (1958)	Dec 82
TUMBLER-SNAPPER (1952)	Apr 82	REDWING (1956)	Jan 83
RANGER (1951)	Apr 82	IVY (1952)	Feb 83
BUSTER-JANGLE (1951)	Dec 82	HARDTACK I (1958)	Apr 83
HARDTACK II (1958)	Jan 83	DOMINIC I (1962)	May 83
DOMINIC II (1962)	Feb 83	GREENHOUSE (1951)	Jun 83
TRINITY (1945)	Feb 83	SANDSTONE (1948)	Sep 83
PLOWSHARE (1962)	Mar 83	CROSSROADS (1946)	Nov 83

Participants who have written or called will be notified when volumes of concern to them have been published and informed of the location of libraries to which distribution has been made. This research/historical report production effort will continue until all atmospheric nuclear weapons tests have been documented and the historical volumes have been distributed.

Of the estimated 220,000 DoD participants in the tests, nearly 95 percent have been identified by name, and preliminary dose information has been recovered for about 134,000. The military services are reconstructing rosters from morning reports and ships' logs, searching medical records and other radiation dosimetry repositories, and identifying units' activities and movements. A product of this research will be listings of participants and their radiation dosimetry information for each series and shot; however, general release of these lists will not be made in order to protect

personal data of individual participants.

- Second, more than 750 formerly classified documents containing information pertinent to the personnel aspects of atmospheric nuclear tests have been declassified. More than 670 of these documents have been catalogued for easy reference by former participants, the VA, and others and placed at the National Technical Information Service (NTIS) for ready public availability. NTIS is an agency of the Department of Commerce and offers these unclassified Department of Defense publications for sale along with other documents. The address and telephone number is: National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161, telephone 703-487-4650. If assistance is desired concerning the acquisition of material, most large public libraries are aware of NTIS and can assist in obtaining documents. The NTIS sales desk telephone number can also be called by any individual. If the exact report desired is not known, an NTIS subject analyst may be able to provide assistance. Moreover, most of the other unclassified documents have been placed at the Department of Energy Nevada Operations Office Coordination and Information Center, Las Vegas, Nevada.

- Third, the NTPR dose reconstruction program has proven to be of great value. It has been used to check the validity of film badge readings (with excellent correlation), to calculate doses for participating groups, and to reconstruct individual doses in specific cases (as in VA claims). As part of this effort, a separate analysis of possible exposures due to inhalation and ingestion of radioactive materials is being done. A later section of this fact sheet discusses dose levels to which participants in the atmospheric nuclear test program were exposed.

- Fourth, the NTPR program operates a toll-free telephone line (800-336-3068)* for test participants to report their involvement in the tests. Information provided by participants has significantly aided in the research and development of a permanent, computerized data base. To date, about 49,000 test participants have called or written DNA.

- Fifth, the individual notification and medical examination program for all individuals who received doses higher than 5 rem** is being carried out in segments, as described below:

  - In March 1979 a notification and medical examination program was initiated for all DoD test participants with cumulative doses from atmospheric testing in excess of 25 rem. The threshold of 25 rem was selected because it is the current recommended national guideline for one-time, planned exposures under emergency conditions. The National Council on Radiation Protection and Measurements evaluates the 25-rem threshold in the following terms in their NCRP Report No. 39 (p. 102):

    > Since planned whole-body doses up to 25 rem are reasonably accepted for emergency conditions ..., it follows that accidental doses up to the same magnitude should not cause major concern. At higher levels and especially where the whole-body dose reaches 100 rem, medical observation and subsequent actions based primarily on medical opinion are the important aspects.

The NTPR program has identified a total of 39 DoD personnel in the over-25-rem group, with doses ranging from just over 25 rem to an estimated high of 98 rem. Most of these were exposed as a result of a wind shift at Shot BRAVO during Operation CASTLE at Bikini in 1954. Four of the 39 are known to be dead from causes not associated with radiation (i.e., trauma, heart attacks). Of the remaining 35 who were all notified, 18 desired physicals, 7 did not want examinations, and 10 have not responded. Of the 18 examinations which have been scheduled, we currently have received the results of thirteen. No adverse health effects associated with radiation exposure at the atmospheric nuclear tests were found during these examinations.

---

* In Virginia, Hawaii, and Alaska call collect to (202) 274-9161.

** A rem is a unit of radiation dose equivalent and reflects the radiation energy deposited within the body tissue and its capability for causing an effect.)

- In May 1979, the notification and medical examination program was expanded to include the DESERT ROCK Volunteer Observers (Officer Volunteers). These 44 volunteers received gamma doses ranging from a few millirem to about 17 rem; however, they were closer to ground zero than any other participants at the time of detonation. The officer volunteers at shots NANCY, SIMON, BADGER, and APPLE II were also exposed to neutron radiation.

- In June 1979, after careful evaluation to ensure the over-25-rem program was functioning well, the notification and medical examination program was expanded to include all participants identified with annual doses in excess of 5 rem. This threshold was chosen both because 5 rem is the current Federal guideline for allowable annual dose to radiation workers and because it is the best single standard to represent permissible dose levels for most DoD personnel at the time of the tests. Notification of participants is based not only on film badge records but also on dose calculations or dose estimates, if these show a possible over-5-rem dose. It is estimated that about 1,100 DoD personnel will be involved.

- Throughout the course of the NTPR effort, the VA has had a program in effect whereby any eligible veteran test participant is given a free medical examination upon request.

• Sixth, the National Academy of Sciences is well into its third year of work to ascertain whether atmospheric test participants exhibit any adverse health effects which might be attributable to test participation. It is conducting a scientific follow-up study of over 50,000 DoD participants in Operations GREENHOUSE (1951), UPSHOT-KNOTHOLE (1953), CASTLE (1954), REDWING (1956) and PLUMBBOB (1957).

• Seventh, the Defense Nuclear Agency has completed research on the U.S. occupation of Hiroshima and Nagasaki. A detailed fact sheet on this has been produced and is being provided to all occupation personnel who have called or written to DNA. A detailed dose reconstruction—using numerous assumptions which would maximize dose--has also been completed. No areas of concern or significant doubt were identified, and the firm, well-substantiated conclusion is that the radiation doses received by members of the Hiroshima and Nagasaki occupation forces were negligible. DNA's research has disclosed no basis for concern by veterans of the Hiroshima and Nagasaki occupation forces over an increased risk of adverse health effects due to radiation during the occupation. In May 1981, the National Academy of Sciences convened a panel to review the occupation of Hiroshima and Nagasaki and to determine the feasibility and desirability of performing epidemiological studies of veterans who served in the occupation forces in Hiroshima or Nagasaki, Japan, immediately following the wartime bombing of those cities. The National Academy of Sciences panel concluded that:

(1) Scientifically sound studies of morbidity among military personnel who entered Hiroshima or Nagasaki soon after the bombings are impractical.

(2) Studies of mortality among these men, from a strictly scientific point of view, appear to carry inordinate cost in relation to the potential benefit.

(3) No study of the population in question could detect effects that would be predictable from existing knowledge of health hazards associated with radiation exposure.

(4) Even if an excess number of cases of multiple myeloma is present in this population of veterans, this cancer is unlikely to be attributable to ionizing radiation. (The NAS is currently investigating, for purposes of verification of diagnosis, the alleged cases of multiple myeloma).

• Finally, the Service NTPR teams have collected extensive basic information about each series and shot of the atmospheric test program in which that military service had any identified participants. They have also organized and trained their research teams in accessing individual service and medical records. They provide effective claims assistance to individual veterans and to the VA. The VA notifies DNA of all test participant veterans' claims and requests assistance in documenting participation and determining radiation dose,if any. The Service NTPR teams research all claims for the VA which have involvement in the atmospheric nuclear tests as the basis.

Dose Levels in the Atmospheric Test Program

Research to date indicates that most recorded doses to DoD personnel during the tests were quite low--averaging about half a rem. Of course, many participants received no dose at all, and only a

very small percentage exceeded 5 rem per year, the current Federal guideline for allowable annual dose to radiation workers. The most basic source of dose data is the file maintained by the Reynolds Electrical and Engineering Company (REECo), a contractor of DoE (AEC), which is the official master repository of dose records for the atmospheric nuclear weapons tests. These REECo files, which contain the records of both DoD and AEC personnel, show the following:

REECo Film Badge Entries
(1945-1962)

Dose	Number of Entries	Percent of Entries
Zero	96,942	42%
One rem or less	204,952	88%
Three rem or less	225,765	97%
Five rem or less	230,984	99%
All	232,303	100%

NTPR Cross-checks on Exposure Levels

To cross-check the accuracy and completeness of the dose data held by REECo, and to ensure that it is representative of DoD participants, the NTPR program conducted numerous separate research efforts on exposures. Examples are:

- Research into historical documentation of numerous individual shots and test series shows dose results similar to the REECo averages. For example: In DESERT ROCK I (Nevada, 1951), none of the participants received over 5 rem; in BUSTER-JANGLE (Nevada, 1951), 0.2 percent received over 5 rem; in TUMBLER-SNAPPER (Nevada, 1952), 1.2 percent received over 4 rem; in TEAPOT (Nevada, 1955), 0.5 percent received over 3.9 rem.

- The Navy NTPR team extracted from REECo files the dose records of former Navy personnel who participated in oceanic testing. Of these individuals, 37 percent received zero exposure and less than one percent received more than 5 rem. In a separate research effort, the Navy conducted a reliability check of radiation dose records obtained from 7,900 individual medical records. Tabulation of the dose showed that less than one percent received more than 5 rem.

- Dose reconstruction was accomplished on Shot SMOKY to check on the accuracy of film badge readings (i.e., to see if test participants might have received larger radiation doses than their film badges recorded). Good correlation between actual film badge readings (0.575 rem average) and the calculated dosage (0.480 $\pm$ 0.135 rem) gives considerable confidence in film badge accuracy.

- Dose reconstructions have been done on other shots and series, and all support the data contained in the REECo files.

- Spot checks were made of film badge readings for members of units which maneuvered in proximity to each other and thus should have received comparable exposures. The results were indeed comparable.

- Intensive research and analyses have been carried out regarding possible neutron exposures, since neutrons would not be recorded on film badges. Dose reconstructions indicate that individuals with significant neutron exposure were officer volunteers. All cases where there was a potential for significant neutron exposure has been investigated in detail.

Based on cross-checks such as these, one can be confident that radiation dose levels shown by the REECo master file data (i.e., an average dose of about half a rem for all participants, and less than one percent with doses above the current allowable annual Federal standard) are reasonably representative of all DoD personnel. The identification and quantification of possible exposure due to inhalation and/or ingestion of radioactive materials has been accomplished for a number of events. Thus far, there have been no indications of significant exposure. This effort is continuing.

Health Effects of Ionizing Radiation

Numerous authorities, national and international, have addressed in detail the health risks caused by radiation doses and have recommended standards of acceptable doses for radiation workers. It has been established that adverse health effects can result from exposure to high levels of ionizing radiation (e.g., 100 rem or more). However, it is not known whether or not there are deleterious health effects from exposure to low levels of ionizing radiation (i.e., a few rem). For many years, medical scientists assumed there were no adverse effects from low exposure, i.e., that a "threshold" level of ionizing radiation existed, below which no adverse health effects would be caused. In the 1940's and 1950's, medical scientists gradually shifted to the present hypothesis--that there is no safe threshold, that even low levels carry some slight statistical risk, and that the degree of risk increases linearly with dose. This conclusion, however, is a hypothesis and is based on observations following high levels of exposure. No firm evidence exists to show that exposure to low levels of ionizing radiation would cause adverse health effects. Following are some examples of pertinent statements by medical and scientific authorities:

- The most direct data for the specific issue of atmospheric test participants comes from the Interagency Task Force on the Health Effects of Ionizing Radiation, conducted at White House direction and submitted to the President in August 1979 by the Secretary of Health, Education and Welfare. Its report states:

> For example, in a population of 10,000, one may normally expect 1,600 cases of fatal cancer; exposure of each of the 10,000 persons to one rem of low LET*, low rate, external, whole body radiation may be expected, under current risk estimates, to increase those deaths to roughly 1,601 (June 1979, p. 35).
>
> Thus, at current risk estimates, each individual has an overall likelihood of dying from cancer of about 16 percent, but the risk of dying from radiation-induced cancer is only about .01 percent for each rem of low-level exposure. Stated another way, 1,600 out of 10,000 persons will eventually die of cancer from various causes, but only one out of 10,000 may be expected to die of radiation-induced cancer following radiation exposure of one rem (June 1979, p. 5).
>
> Estimates vary, but the DoD, which is conducting a major research project to identify this test population, believes that about 250,000,** DoD personnel (the great majority of them military) participated in these tests. While the actual exposure levels are under study, the current collective dose estimate is 115,000 person-rems at the Nevada and Pacific test sites. The currently assumed dose-response relationship for cancer would indicate about 12 excess cancer deaths from this estimated radiation dose over the lifetimes of the 250,000 involved (June 1979, p. 63).

- The International Commission on Radiological Protection (ICRP), the most prestigious international group addressing radiation issues, makes the same risk estimate in their 1977 Recommendations of the International Commission on Radiological Protection, ICRP Publication 26, which states:

> For the purposes of radiation protection involving individuals, the Commission concludes that the mortality risk factor for radiation-induced cancers is about 10^{-2} Sv^{-1}, as an average for both sexes and all ages (January 17, 1977, p. 12). (Note: a sievert (Sv) equals 100 rem, thus the above statement puts the risk at one cancer death per 10,000 persons exposed to one rem.)

ICRP Report No. 26 also states, with regard to these risk estimates, that:

*Linear Energy Transfer (LET) is the conventional expression for the rate of energy deposition measured along the track of an ionizing particle. Gamma rays and X-rays generate low-LET electron tracks. Alpha particles and neutrons generate high-LET tracks.

**Current estimate is about 220,000.

> The use of linear extrapolations, from the frequency of effects observed at high doses, may suffice to assess an upper limit of risk.... However, the more cautious such an assumption of linearity is, the more important it becomes to recognize that it may lead to an over estimate of the radiation risks.... Thus, in the choice of alternative practices, radiation risk estimates should be used only with great caution and with explicit recognition of the possibility that the actual risk at low doses may be lower than that implied by a deliberately cautious assumption of proportionality (p. 7).

- The United Nations Scientific Committee on the Effects of Atomic Radiation, in their 1977 UNSCEAR report, states:

> The average risk of inducing a fatal malignancy is thus taken as being in the region of 10^{-4} rad^{-1}... (p. 6) (that is, one fatal cancer for every 10,000 individuals exposed to one rad).

This UNSCEAR report also states:

> It must be emphasized again, however, that such a value is derived essentially from mortalities induced at doses in excess of 100 rad. The value appropriate to the much lower dose levels involved in occupational exposure, and even more so in environmental exposures to radiation, may well be substantially less (p. 414).

- In 1980, the Committee on the Biological Effects of Ionizing Radiation (BEIR Committee) of the National Academy of Sciences issued The Effects on Populations of Exposure to Low Levels of Ionizing Radiation which updates their 1972 report. To illustrate risk calculations, the Committee considered two situations: a single exposure to 10 rads and a continuous, lifetime exposure of 1 rad per year. They found that the lifetime risk of cancer mortality ranges from 77 to 226 excess deaths per million per rad for the single exposure, and 67 to 182 excess deaths per million per rad for the continuous exposure. Thus for a single exposure to 10 rads, 770 to 2,260 excess cancer deaths are predicted per million people. The normal expectation of cancer deaths is from 160,000 to 170,000 per million. (pp. 191-192, 265) The 1980 BEIR report predicts a lower risk than their 1972 report. This is because they felt the linear response model used by the 1972 Committee to extrapolate from high exposure levels to low levels did not fit the epidemiological data from high dose exposures as well as the linear-quadratic dose-response model.

- The National Council on Radiation Protection and Measurements, taking cognizance of all available information on health risks, stated in their 1971 NCRP Report No. 39, Basic Radiation Protection Criteria:

> The maximum permissible prospective dose equivalent for whole body irradiation from all occupational sources shall be 5 rem in any one year (p. 89).

NCRP Report No. 39 also states:

> In the interest of estimating effects in humans conservatively, it is not unreasonable to follow the assumption of a linear relationship between dose and effect in the low dose regions for which direct observational data are not available. It is generally agreed that such an assumption is conservative and would tend to give upper limits for any particular effect (p. 55).
>
> Experience with occupational exposure in the general neighborhood of presently acceptable limits over the last two or three decades has shown no identifiable injury ascribable to radiation (p. 50).

The NCRP reaffirms this 5 rem per year standard in their more recent (1975) Report No. 43. This report also states:

> The NCRP continues to hold the view that risk estimates for radiogenic cancers at low doses and low dose rates derived on the basis of linear (proportional) extrapolation from the rising portions of the dose-incidence curves at high doses and high dose rates, as described and discussed in subsequent sections of this report, cannot be expected to provide realistic estimates of the actual risks from low level, low LET radiations, and have such a high probability of over estimating the actual risk as to be of only marginal value, if any, for purposes of realistic risk-benefit evaluation (p. 2).

• The actual U.S. Federal radiation exposure standards were established by the President in 1960, based upon recommendations by the Federal Radiation Council. These standards are somewhat less stringent than the NCRP recommendations, in that they allow 3 rem per quarter, or 12 rem per year, until an accumulated dose equal to 5(N-18) is reached (where N is age in years). For example, a 26-year-old could, within today's Federal standards, receive doses of 12 rem per year for five years, thus accumulating 60 rem at the age of 30. Once the 5(N-18) limit is reached, allowable exposure is limited to 5 rem per year. The actual practice followed today however is to limit annual exposures to 5 rem.

• Nor is 5 rem per year a U.S.-only limit. The ICRP, an international body, also recommends an allowable exposure of 5 rem per year for occupational workers, and even condones 12 rem per year under infrequent conditions.

Summary

Based upon research to date, the average exposure of DoD participants in the atmospheric nuclear tests has been determined to be about one-tenth of the level that is generally agreed as an acceptable annual exposure for radiation workers; authorities widely agree in their assumption that the health risk from an exposure of half a rem is very low (approximately one fatal cancer per 20,000 individuals).

It should be noted that even today, 20-35 years after some 220,000 DoD personnel participated in the atmospheric test program, the only indication that there may be an increased health risk associated with test participation is CDC's identification of leukemia cases (now listed by CDC as nine) among participants whom CDC stated were present at the Nevada Test Site for Shot SMOKY, where the expected normal incidence in this group would be between three and four. (And, as stated earlier, CDC has not to date attributed this leukemia to exposure to ionizing radiation.)

The NTPR program is conducting a careful look into the history of the radiological safety aspects of the atmospheric nuclear weapons testing program and the development of historical documents to record the radiological exposures, if any, and to identify DoD personnel participation. The documents are now becoming available to the public at various libraries throughout the United States.

The careful and extensive study, so far, into the atmospheric nuclear test program indicates that overall the radiological safety precautions and safety measures taken, even in light of today's scientific knowledge of radiation effects, were adequate and there was only a very slight, if any, health risk to test participants.

ADMINISTRATIVE COSTS OF H.R. 1811, S. 453, AND S. 1002

(Subsequently the Veterans Administration furnished the following clarifying information:)

H.R. 1811

Fiscal year	Veteran cases	Veteran cost ($000)	Survivor cases	Survivor cost ($000)	Man yrs.	Admin. cost ($000)	Total benefit cost ($000)
1988	1,968	$20,200	4,366	$31,400	12	$341	$51,600
1989	1,955	19,900	4,382	31,500	...	...	51,400
1990	1,942	19,600	4,389	31,600	...	...	51,200
1991	1,923	19,200	4,396	31,700	...	...	50,900
1992	1,908	19,000	4,403	31,700	...	...	50,700
		$97,900		$157,900	...	...	$255,800

The administrative cost of H.R. 1811 following the first year of enactment would be less than $100,000 in any fiscal year.

S. 453

Fiscal year	Veteran cases	Veteran cost ($000)	Survivor cases	Survivor cost ($000)	Total cases	Total benefit cost ($000)
1988	200	$2,663.9	1,011	$7,208.0	1,211	$9,871.9
1989	195	2,644.3	1,032	7,363.0	1,227	10,000.3
1990	190	2,605.2	1,051	7,507.1	1,241	10,112.3
1991	185	2,546.6	1,068	7,636.9	1,253	10,183.5
1992	175	2,487.9	1,083	7,752.2	1,263	10,240.1
		$12,947.9		$37,467.2		$50,415.1

The administrative cost of S. 453 would be less than $100,000 in any fiscal year.

S. 1002

Fiscal year	Veteran cases	Survivor cases	Man yrs.	Admin. cost ($000)	Total benefit cost ($000)
1988	3,192	4,008	15	$414	$26,400
1989	3,267	4,095	...	...	26,900
1990	3,340	4,181	...	...	27,300
1991	3,402	4,266	...	...	27,800
1992	3,472	4,349	...	...	28,200
					$136,600

The administrative cost after the first year of enactment would be less than $100,000 in any fiscal year.

Methodology

The benefit cost for each bill was estimated by applying the incident and mortality rates for the specific diseases listed to the veteran population in question, that is, 110,000 veterans who served with the occupation forces at Hiroshima or Nagasaki within 10 miles of either city on official duties for at least one day between September 1945 and June 1946, and approximately 203,000 veterans who participated in an atomic test or worked on the the proving grounds at the time of a detonation or test series. By applying the incident and mortality rates we were able to arrive at the projected number of veterans afflicted with a disease, as well as the number of deaths in those populations. From these numbers we computed the number of veterans surviving (incidence minus deaths). We projected the number of survivors who would be eligible for benefits under the bill by calculating the proportion of veterans in general who are rated 30% or more disabled (thus establishing entitlement to survivors' benefits) and the proportion of veterans who have dependents, and applying the results against our projection regarding atomic veterans.

It was assumed that new veteran cases on the rolls would receive the 100% rate for an average of 2.5 years after first contracting the disease and then would be reduced to the average award value of those cases currently on the rolls. Survivor-benefit payments were assumed to be identical to the average DIC award value (per September Coin 127).

If a veteran's death occurred prior to 1957, survivors could be entitled to death compensation; however, DIC would be the significantly greater benefit. Therefore, it was assumed that survivors would all elect DIC benefits.

With regard to the diseases enumerated in H.R. 1811, we assumed:

	Incidence rates per 100,000	Mortality rates per 100,000
Leukemia	9.9	8.5
Thyroid gland	2.9	0.4
Lung & bronchus	81.7	65.6
Female breast cancer	82.6	28.8

The leukemia rate was adjusted to account for the exclusion of chronic lymphatic leukemia. Polycythemia vera was not included in the cost estimate due to a lack of statistical data on incidence and mortality rates.

2.

In reference to the diseases specified in S. 453, we assumed:

	Incidence rates per 100,000	Mortility rates per 100,000
Leukemia	9.9	8.5
Liver cancer	3.4	3.3
Multiple myeloma	3.5	3.3

The leukemia rate was adjusted to reflect the exclusion of chronic lymphatic leukemia from the list of diseases in the bill.

Assumptions regarding radiogenic diseases listed in S. 1002 were as follows:

	Annual incidence rates per 100,000	Annual mortality rates per 100,000
Leukemia	11.6	8.9
Thyroid gland	2.9	0.4
Colon	39.2	21.3
Small intestine	1.0	0.4
Stomach	13.1	9.4
Liver	3.4	3.3
Bile ducts & gallbladder	1.0	0.7
Pancreas	12.0	11.4
Lymphomas	10.4	4.3
Multiple myeloma	4.6	3.3

Clarification of Numbers - Radiation Claims

In order to clarify the testimony concerning radiation claim numbers, a brief explanation of the Special Issue Rating System (SIRS) and the current rules for adjudicating radiation claims is required.

When a rating decision is made on a claim involving exposure to ionizing radiation, a SIRS record must either be established or updated. SIRS records are established for claims based on exposure to radiation from any source and are classified into four categories: (1) exposure during atmospheric nuclear testing, (2) exposure in a therapeutic or occupational setting, (3) exposure as a member of the occupation forces in Hiroshima or Nagasaki, and (4) exposure from some other source. When a record is established in SIRS, the claim has been finally adjudicated by a regional office.

There are a total of 6093 radiation claims recorded in SIRS as of June 1, 1987. By category of exposure those claims break down as follows:

(1)	nuclear testing	3287
(2)	therapeutic or occupational	1174
(3)	occupation forces	1121
(4)	other	511
	total	6093

The term "atomic veterans" is generally applied to veterans in categories (1) and (3), so the total number of claims from "atomic veterans" that have been finally adjudicated by a regional office is 4408.

The current rules for adjudicating radiation claims became effective on September 25, 1985, and were promulgated in response to Public Law 98-542. Prior to that date radiation claims were adjudicated under the standard rules for determining service-connection.

The new rules provide for a two-tier system of review for radiation claims. The initial review is accomplished at the regional office level. In order to pass the initial review three criteria must be satisfied: (1) there must have been exposure to ionizing radiation, (2) the veteran must have one of the radiogenic diseases listed in the regulations, and (3) the disease must have become manifest within the time period specified in the regulations. If any one of these three criteria are not satisfied (and there is no other way of establishing service-connection), the claim is denied at the regional office level and a SIRS record is established.

It a claim satisfies the initial review criteria, it is forwarded to Central Office for additional review and preparation of an advisory opinion on the issue of service-connection. When an advisory opinion is received, the regional office takes a final action on the claim and establishes a SIRS record. Since September 1985 when this two-tier review system was implemented, 434 claims satisfied the initial review criteria and received advisory opinions. Of that total, 268 advisory opinions were issued since July 1986.

While disabilities may be claimed as due to radiation exposure, service-connection may be established under other regulations. For example, a veteran might claim liver cancer due to radiation exposure, but if the condition had become manifest within one year of discharge, service-connection would be established based on a legislative presumption and the issue of a relationship to radiation would not have to be addressed. While there have been over 100 claims allowed on other grounds, only 28 claims have been allowed on the basis that radiation exposure resulted in the claimed disabilities.

(Subsequently, the Veterans Administration submitted the following additional information:)

The reliability of the dose data supplied by the Defense Nuclear Agency (DNA) has been challenged by some veterans. It should be noted that the DNA asked the National Academy of Sciences/National Research Council (NAS) to review the methodology used by the DNA to determine the radiation exposures for the participants in the atmospheric nuclear tests. Their report, Review of the Methods Used to Assign Radiation Doses to Service Personnel at Nuclear Weapons Tests, was released in February 1986. The Committee concluded:

> The methods used by the (DNA) to assign external gamma doses are generally reasonable and make appropriate use of external data. They provide a data base and a system of dose assignment that will permit estimating the external doses received by persons who participated in atmospheric tests of nuclear weapons.....The Committee noted that about 99% of the estimated doses are smaller than the doses received by the personnel from natural and medical sources of ionizing radiation (about 5 rems in 30 years)....The external dose from beta radiation was difficult to measure during the period of atomic testing, because of limita- tions in the film badges then in use. The characteristics of beta radiation are such that the dose would be limited to the skin and the dose received by parts of the body covered by clothing would be greatly reduced or eliminated.

Concerning the methods used to assign internal doses associated with inhalation or ingestion of radioactive material, the NAS concluded that they were based on unsupported assumptions:

> The methods often attempted to relate internal dose to the magnitude of external radiation and tended to overestimate internal doses. There is considerable evidence that, with the exception of doses to the thyroid, doses to any organ from internal emitters were far smaller than the external dose.

The NAS concluded that it found no evidence that DNA had been remiss in carrying out their mandate. The NAS noted that "(i)f any bias exists in the estimates, it is probably a tendency to overestimate the most likely dose, especially for internal emitters or when the statistical procedure for assigning dose is used."

Allowed Claims for Service-Connected Disabilities Based on Radiation Exposure

MAR 13 1986

Director (21)
VA Regional Office
San Francisco, CA

212A
XC 13 020 759
CONNER, William R.

SUBJ: Consideration of radiation claim - Entitlement to SC for cause of death

1. Review of the evidence in this case shows the veteran died on 4/5/84 due to metastatic adenocarcinoma and squamous cell carcinoma of the lung. A letter, dated 1/5/84, from the Department of the Air Force, USAF Occupational and Environmental Health Laboratory, subsequently verified by the Air Force NTPR, sets forth the veteran's total exposure to radiation received at Series HARDTACK I in 1958 as 11.230 rem: HARDTACK II in 1958 as 1.550 rem: and DOMINIC II in 1962 as 0.000 rem.

2. Records show no occupational exposure to radiation or other carcinogens post-service, or of a family history of malignancies although there is a history of cigarette smoking. The veteran was 35 years of age at time of exposure. There is no evidence that the veteran's pulmonary malignancy was the result of his own willful misconduct or that it was due to a supervening, nonservice-related condition or event.

3. Following review of the evidence in its entirety we are convinced that sound scientific and medical evidence supports the conclusion it is at least as likely as not the veteran's pulmonary carcinoma resulted from exposure to radiation in service.

4. Rating action should be taken establishing service connection for cause of death as well as entitlement to accrued benefits.

GERALD P. MOORE, Director
Compensation and Pension Service

212A/21 JA:imb

Washington, D.C. 20420

NOV 14 1986

Director (21)
VA Regional Office
Milwaukee, WI

214D
CSS 387 20 6652
BONE, James, Jr.

Subject: Radiation review under 38 CFR 3.311b

An opinion from the Chief Medical Director notes that while the veteran's carcinoma is most likely related to exposure to sunlight, there is a reasonable possibility the radiation treatments contributed to its development. Resolving reasonable doubt in favor of veteran, service-connection should be established for his basal cell carcinoma.

GERALD P. MOORE, Director
Compensation and Pension Service

JEK: 10MJH4 214D/21

TO ACCOMPANY FOLDER

MAY 1 3 1987

Director (21)
VA Regional Office
Winston-Salem, NC

214D
C 14 967 198
STALLINGS, Joe B.

Subject: Radiation review under 38 CFR 3.311(b)

1. Letter from the Marine Corps MTPR dated October 6, 1986, reveals radiation dosimeters or detection devices were not issued to Marines assigned to occupation duty in Japan. Defense Nuclear Agency physicists have examined records of the postwar Nagasaki radiological environment. Based on that examination it was determined that the "worst case" radiation dose for occupation troops is 0.63 rem. No Marine who served in postwar occupation duty was exposed to that quanity of radiation. The estimated external radiation dose is noted as 0.02 rem. The neutron radiation dose, and the 50 year bone dose commitment (internal dose) for personnel whose activity scenario approximated that stated in the external dose estimate, above, is zero rem.

2. Carcinoma of the colon was first diagnosed in 1966. The veteran reported there is no history of cancer in his immediate family. Post-service the veteran worked as a farmer.

3. Following a review of the evidence in its entirety, it is our opinion that based on the low level of radiation exposure, there is no reasonable possibility the carcinoma of the colon resulted from radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

JEK: 4MJH2 214D/21

Approved: _____
R. J. VOGEL
Chief Benefits Director

TO ACCOMPANY FOLDER

OCT 15 1986

Chief Benefits Director (214D)

Opinion regarding relationship of skin cancer to radiation exposure in service from x-rays.

Chief Medical Director (11B)

1. The veteran had honorable service in the U.S. Navy from August 1944 to August 1946. Service medical records reveal he was seen on October 9, 1945, with a diagnosis of acne vulgaris and referred to the U.S. Naval Hospital, Great Lakes for weekly x-ray treatments. Separation examination on August 22, 1946, noted normal skin.

2. The veteran in an attachment to his claim for disability compensation noted the skin eruption developed about August 1945 and that he received radiation treatments at Great Lakes Naval Hospital for a period of about three months. In March 1985 biopsy revealed basal cell carcinoma of superior sulcus of right ear. Board of Specialist Opinion dated May 2, 1986, noted basal cell epitheliomas are common after middle age with no history of x-ray therapy and that the x-ray treatment is probable not the cause of that condition.

3. The case is submitted for your review and expression of opinion as to whether there is a reasonable possibility as opposed to a remote possibility that the basal cell carcinoma diagnosed in 1985 resulted from treatment by radiation in 1945 and 1946 while in service.

R. J. VOGEL
Chief Benefits Director

CSS 387 20 6652 BOWE, James Jr.

Veterans Administration

Memorandum

Date August 8, 1986

From Adjudication Officer (21)
VARO Milwaukee

Subj CSS 387 20 6652
BOWE, James Jr.

To Chief Benefits Director
VA Central Office
214D Washington, DC

1. Veteran's service Navy 8-8-44 to 8-24-46.

2. Service medical records indicate the veteran was seen on 10-9-45, with a diagnosis of acne vulgarus. This condition developed while on duty in the Western Pacific area around Okwinawa, Ryukua Islands. The report shows that recommended treatment included x-rays at the United States Naval Hospital on a weekly basis. It was not felt that he was qualified for sea duty at that time.

3. Veteran was found to have basal cell carcinoma of the superior sulcus of the right ear in March 1985.

4. Age at time of exposure: 19 years.

5. Dosage assessment, dose and duration of x-ray treatment given in 1945 is not recorded but patient history is that treatment was given for approximately three months.

6. Time lapse between exposure and onset of disease is approximately 40 years.

7. Pertinent family history and employment history: The veteran states that he was employed as an inventory control man in a wharehouse starting in September 1947 and currently is working as a crane operator. He knows of no radiation involvement subsequent to service discharge. His father died at age 68 from a cerebrovascular accident and his mother now age 76 is in good health. The veteran is one of 10 children all still living and with no evidence of cancer or leukemia.

8. The veteran states he has no known history of exposure to carcinogens or radiation prior to or after service. He has never smoked. He states he was a once a week golfer up until approximately 10 years ago.

9. Claim is submitted for your review relative to the issue of establishing service connection for basal cell carcinoma secondary to x-ray therapy received in service.

Douglas A Wallin

DOUGLAS A. WALLIN
Adjudication Officer

Folder to accompany.

VA FORM 2105 SEP 1984 RW:jw 8-8-86 (136)

APR 2 2 1987

Director (21)
VA Regional Office and Insurance Center
St. Paul, MN

214D
C 19 116 010
HEITZMAN, Clarence L.

SUBJ: Radiation review 38 CFR 3.311b

1. After initial review the veteran's folder was referred to the Chief Medical Director for preparation of a dosage estimate, and expression of opinion whether the cancer of the colon that developed in 1984 resulted from exposure to radiation therapy in service.

2. Review revealed the veteran had a daily radiation dose of 200R(air) to each portal, giving an estimated tumor dose of 1200R. Several studies strongly suggest an increased incidence of carcinoma of the colon in patients treated for cancer. (Ref: "Medical Effects of Ionizing Radiation" by Mettler and Mosley, page 111). An opinion was furnished that it is likely that the adenocarcinoma this veteran developed may have been related to the radiation therapy he received while on active duty.

3. The veteran's death certificate shows he died of metastatic adenocarcinoma of the colon on 3/14/85. The widow has filed a claim for service-connected death benefits.

4. Following review of the evidence under 38 CFR 3.311b, it is our opinion that the evidence supports the conclusion it is at least as likely as not the veteran's adenocarcinoma resulted from the radiation therapy in service, and service-connection should be established.

GERALD P. MOORE, Director
Compensation and Pension Service

Approved: _____
R. J. VOGEL
Chief Benefits Director

MCV:tyr 4TYR2/HEITZMAN 214D/21

TO ACCOMPANY FOLDER

Veterans Administration

Memorandum

Date: April 8, 1987

From: Director, Radiology Service (114)

Subj: HEITZMAN, CLARENCE L. XC 19 116 010

To: Chief Benefits Director (214D)

1. Mr. Heitzman received radiation therapy to his entire abdomen, delivered between August 11, 1954 and October 6, 1954. The daily dose to each portal was 200R (air) giving an estimated tumor dose of 1200R.

2. The veteran died of adenocarcinoma of the colon on March 14, 1985.

3. There have been several studies that strongly suggest an increased incidence of carcinoma of the colon in patients treated for cancer and in those treated for ankylosing spondylitis. (Reference "Medical Effects of Ionizing Radiation by Mettler and Mosely", page 111).

4. In my opinion, it is likely that the adenocarcinoma this veteran developed may have been related to the radiation therapy he received while on active duty.

Arthur D Graham, MD

ARTHUR D. GRAHAM, M.D.

Attachment: Medical Records

Examples of Claims for Service-Connected Disabilities Based on Radiation Exposure Not Allowed

MAR 20 1987

Chief Benefits Director (214)

Radiation review 38 CFR 3.311b

Chief Medical Director (11B)

1. The veteran was service connected for lymphosarcoma of the abdomen. During service in 1954 he had an ileo transverse colostomy with resection of the colon. From August 11, 1954 to October 6, 1954, he received 48 x-ray treatments over 56 days. The daily dose was 200R (air). A summary of treatment is contained in the service medical records.

2. The veteran's death certificate shows he died of adenocarcinoma of the colon on March 14, 1985. Service connection was denied for cause of death as the present disease process was not shown to be associated with the service-connected condition.

3. A medical opinion was provided on January 23, 1986 which found no relationship between the veteran's service-connected carcinoma, surgery and radiotherapy, and the adenocarcinoma that developed in 1984.

4. The veteran's records are submitted to you for preparation of a dosage estimate to the extent feasible, and expression of opinion setting forth your rationale, whether it is as least as likely, unlikely, or approximately as likely as not that the veteran's adenocarcinoma of the colon that developed in 1984 resulted from exposure to radiation therapy in service.

R. J. VOGEL

MCV:tyr 3TYR1/HEITEMAN 214D/21

HEITZMAN, Clarence L. XC 19 116 010

APR 2 2 1987

Director (21)
VA Regional Office
St. Paul MN

214D
C 19 4R7 467
JOHNSON, Lloyd H.

SUBJ: Radiation review, 38 CFR 3.311b

1. After initial review, the veteran's folder was referred to the Chief Medical Director for an opinion whether it was likely, unlikely, or approximately as likely as not that the veteran's skin cancer resulted from exposure to radiation in service. The veteran participated in Operation Teapot in 1955.

2. An opinion was furnished that it is unlikely that the veteran's radiation caused the skin cancer. However, carcinoma of the skin sometimes develops in a pre-existing scar (Cancer, Ackerman and del Regato). It was further stated that there is a distinct possibility that the combination of trauma (i.e., the scar) combined with exposure to sunlight and ionizing radiation together, produced the tumor. Therefore, the imaging radiation may have been a contributing factor.

3. The Chief Medical Director stated it is unlikely that the radiation alone caused the skin cancer, but may have been a contributing factor, when considered with his head trauma and exposure to sunlight. This gives rise to a reasonable possibility that the estimated dose of 11.54 rem gamma and 1.502 rem neutron may have been a contributing factor to the subsequent development of skin cancer. Consequently, in our opinion, all reasonable doubt should be resolved in the veteran's favor, and service connection granted for the carcinoma.

GERALD P. MOORE, Director
Compensation and Pension Service

Approved: _____
P. J. VOGEL
Chief Benefits Director

TO ACCOMPANY FOLDER
VUDRAGOVICH:tyr 4TYR2/JOHNSON 214D/21

March 4, 1987

Director, Radiology Service (114)

JOHNSON, Lloyd H. C 19 487 467

Chief Benefits Director (214D)

1. Mr. Johnson participated in Operation Teapot in 1955 which involved a number of weapons tests. His total estimated dose was 11.54 rem gamma and 1.502 rem neutron. In May 1984, he had a basal cell carcinoma removed from his left temple.

2. It is of some importance that the operative report dated May 1, 1984 signed by Robert Havel, M.D., states, "The patient had an injury to his scalp a number of years ago and developed a scar in the area and probably developed a carcinoma under this area." Carcinoma of the skin sometimes develops in a pre-existing scar. (Reference: Cancer by Ackerman and del Regato).

3. The question is whether the radiation caused the skin cancer. This is unlikely. There are approximately 120,000 cases of skin cancer annually in the United States. The absolute annual risk estimate for ionizing radiation may be between 0.4 and 1.0 case annually per/million persons for each rad. (Reference: Medical Effects of Ionizing Radiation by Mettler and Moseley).

4. There is, however, a distinct possibility that the combination of trauma (i.e., the scar) combined with exposure to sunlight and ionizing radiation together, produced the tumor. Therefore, the imaging radiation may have been a contributing factor.

ARTHUR D. GRAHAM, M.D.

Attachment: Medical Records

MAY 1 1987

Director (21)
VA Regional Office
Boise, ID

214D
XC 26 186 060
TREAT, Ira E.

SUBJ: Radiation review under 38 CFR 3.311b

1. The veteran served in the U.S. Marine Corps from November 1940 to January 1961. Service medical records disclose he received radiation burns to the abdomen at the Eniwetok-Bikini Proving Grounds as the result of fallout from the March 1, 1954, explosion. These burns healed. Rating decision dated April 20, 1971, held residuals from these burns were the result of his service and assigned a noncompensable evaluation for this condition. The veteran claimed disability benefits for cancer of the throat in February 1971. Rating in May 1971 held this cancer was not the result of his radiation exposure in service. He died in October 1971 before the Board of Veterans Appeals had made a decision on his appeal. The veteran's widow filed a claim contending the carcinoma of the esophagus, which resulted in the veteran's death, was a result of radiation exposure in service. Her claim was disallowed in December 1971. Board of Veterans Appeals decision dated February 21, 1973, held entitlement to service connection for the cause of death is not established. The Board of Veterans Appeals considered the report of the private physician dated September 8, 1971, that noted there is strong circumstancial evidence that the veteran's cancer had origin in the radiation exposure in service and the Independent Medical Expert opinion dated January 17, 1973, that noted in his opinion there is no causative relationship between the radiation exposure in 1954 and the subsequent development of carcinoma of the esophagus.

2. Letter from the Marine Corps NTPR dated September 25, 1986, disclosed that between February 28, 1954, and May 17, 1954, the veteran was exposed to 7.33 rem in conjunction with Operation CASTLE.

3. Based on the above, an opinion was requested from the Chief Medical Director on February 24, 1987.

TO ACCOMPANY FOLDER

2.

TREAT, Ira E. XC 26 186 066

4. Opinion from the Chief Medical Director dated April 13, 1987, with which we concur, is that there is a possibility that the veteran did swallow dust which contained the same beta radiation that caused his skin burns and that this ingested radiation may have contributed to his subsequent esophageal carcinoma. Considering this new and material evidence, it is our opinion there is a reasonable possibility the esophageal cancer resulted from radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

Approved: _____
R. J. VOGEL
Chief Benefits Director

JEK:tyr 4TYR3/TREAT 214D/21

Veterans Administration

Memorandum

Date: April 13, 1987

From: Director, Radiology Service (114)

Subj: TREAT, IRA E. XC 26 186 066

To: Chief Benefits Director (214D)

1. Mr. Treat participated in Operation Castle in 1954. His official estimate of exposure is 2.33 rem. It should be noted, however, that he served on an aircraft carrier and assisted in the landing of several aircraft during a period of active "fall out." As a result, he suffered radiation burns of the abdomen, presumably from beta radiation in dust which accumulated around his belt line.

2. A letter dated September 8, 1971 is enclosed from a Dr. William W. Patton who treated Mr. Treat. In the letter he states dust accumulated on Mr. Treat's lips and was swallowed. Dr. Patton states, "I believe that there is strong circumstantial evidence that this man's present disease (i.e., esophageal cancer) had origin in the radiation exposure." Mr. Treat died of poorly differentiated carcinoma of the esophagus on October 12, 1971.

3. It should also be noted, however, there is a letter from a Shields Warren of the Cancer Research Institute in Boston, Massachusetts that is dated January 17, 1973 which states, "There is no reasonable medical basis for concluding that the carcinoma of the esophagus....is etiologically related to the radiation exposure."

4. In the atomic bomb survivors exposed at Hiroshima there were excess deaths due to esophageal carcinoma. Patients treated with x-ray for ankylosing spondylitis experienced an increased incidence of carcinoma. (Reference Medical Effects of Ionizing Radiation by Mettler and Moseley.)

5. I believe there is a possibility that Mr. Treat did swallow dust which contained the same beta radiation that caused his skin burns and that this ingested radiation may have contributed to his subsequent esophageal carcinoma. I would, therefore, agree with Dr. Patton's opinion and disagree with that of Shields Warren.

Arthur D. Graham, M.D.

ARTHUR D. GRAHAM, M.D.

Attachment: Medical Records

FEB 2 4 1987

Chief Benefits Director (214D)

Medical opinion regarding relationship between carcinoma of the esophagus and exposure to ionizing radiation
Chief Medical Director (11F)

1. The veteran served in the U.S. Marine Corps from November 1940 to January 1961. Service medical records disclose he received radiation burns to the abdomen at the Eniwetok-Bikini Proving Grounds as the result of fallout from the March 1, 1954, explosion. These lesions on the abdomen healed without complication. Examination dated November 21, 1960, noted a 1½ and ¼ inch lateral scar of the mid epigastrium.

2. A letter dated September 22, 1986, from the Marine Corps NTPR noted the veteran was exposed to 2.33 rem in conjunction with Operation CASTLE.

3. Undifferentiated carcinoma of the esophagus was first diagnosed in December 1970 by a private physician and the veteran died of this condition on October 12, 1971. Autopsy report of October 13, 1971, noted extensive metastatic poorly differentiated squamous cell carcinoma. Slides which were taken at that time are in the claims folder. Also, during previous appellate review an expert opinion was obtained. This opinion dated January 17, 1973, noted there is no reasonable medical basis for concluding that the carcinoma of the esophagus initially diagnosed in 1970 is etiologically related to the radiation exposure received in service.

4. The claims folder is referred to you for review and expression of an opinion as whether, based on sound scientific and medical evidence, it is either likely, unlikely, or approximately as likely as not, that the veteran's carcinoma of the esophagus resulted from his radiation exposure in service. Please set forth clearly the rationale for your decision.

R.J. VOGEL

JTK:tyr 2TYR2/TREAT 214D/21

TO 36 186 066 TREAT, Ira L.
TO ACCOMPANY FOLDER

FEB 27 1987

Director (21)
VA Regional Office
Nashville, TN

214D
SSC 411 30 0314
PUGH, Joseph E.

SUBJECT: Review of radiation claim

1. The veteran had service in the U.S. Air Force from February 13, 1947 to April 30, 1967. Medical records from June 1983 show the veteran was admitted and treated for squamous cell carcinoma of the skin of the left infra-auricular area. The lesion had been present for about two years. Biopsy had proven it to be squamous cell carcinoma. Local excision was preformed. Exposure to the sun was noted by the veteran during the course of his Air Force duties. There was no exposure to radiation since 1949. The veteran noted that no member of his family had carcinoma. He also stated that he smoked one pack of cigarettes a day.

2. Letter dated October 28, 1986, from the U.S. Air Force NTPR indicates that there was no recorded radiation dose for Mr. Pugh. However, he was a confirmed participant in Operation SANDSTONE in 1948. A reconstructed dose of 0.080 rem gamma was assigned to Mr. Pugh. The reconstructed neutron dose was zero rem.

3. Upon consideration of all the evidence of record, including the low level of radiation exposure in service, there is no reasonable possibility that the veteran's squamous cell carcinoma of the skin was the result of radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

ED:cyl 21YR1/PUGH 214D/21

November 19, 1986

320/21

Director, Compensation & Pension Service (212A)
VA Central Office
Washington, DC 20420

SUBJ: Request for Advisory Opinion
Joseph E. Pugh CSS-411 30 0314

1. This case is referred for consideration and advice per 38 CFR 3.311b(b)(1).

2. The veteran served on active duty from 2-13-47 to 4-30-67, retiring from service. He alleges exposure to ionizing radiation in 1948 at Eniwotok Kwajalein Atoll, at age 19.

3. He claims service connection for squamous cell carcinoma of the skin, first diagnosed in 1981, some 33 years after radiation exposure. He had surgical removal of the carcinoma in June 1983.

4. Mr. Pugh has been employed as an automobile salesman since his retirement from service. His only known exposure to any carcinogens is exposure to the sun for 1 1/2 years in Tampa, Florida; 5 years in Tripoli, Libya (North Africa); 5 years in Athens, Greece; and 3 years in Hawaii. He has no family members known to have leukemia or any other form of cancer. He averages smoking one pack of cigarettes per day.

5. Reconstructed dose assessment for the veteran, as given by NTPR, is 0.080 rem.

6. Your usual expeditious handling of this case will be appreciated.

R. S. BIELAK
Director

211/00 MLF:ahd
LETTER TO ACCOMPANY CLAIMS FOLDER

FEB 27 1987

Director (21)
VA Regional Office
Manchester, NH

214D
CSSN 002 07 6358
LEBEL, Maurice E.

SUBJ: Radiation review under 38 CFR 3.311b

1. Letter from the Army NTRP dated 2/6/87, discloses the 260th Signal Construction Company, the unit to which the veteran was assigned in 1945, was stationed in Tokyo, Japan in 1945. This letter notes a scientific dose reconstruction has determined the maximum possible radiation dose that might have been received by any individual who was at either Hiroshima or Nagasaki for the full duration of the American occupantion (September 1945 to June 1946 for Nagasaki; and September 1945 to March for Hiroshima). Using all possible "worst case" assumptions, the maximum possible dose and individual serviceman might have received from external radiation, inhalation, and ingestion is less than one rem. This does not mean that any individual approached that level of exposure and they show that, in fact, it is possible that the highest dose received by anyone was a few tens of a millirem. Their letter further states it is clear that the great majority of U.S. servicemen assigned to these cities received no radiation exposure whatsoever.

2. Cancer of the colon was diagnosed in June 1976. Post service occupational history noted he work 32 years as a roofer. He stated he was a light smoker from 1940 to 1955. Family history showed one sister died at age 76 from cancer of the colon.

3. Following review of the evidence in its entirety, there is no reasonable possibility the veteran's cancer of the colon resulted from radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service
KANE:tyr 3TYR1/LEBEL 214D/21

TO ACCOMPANY FOLDER

FEB 26 1987

Director (21)
VA Regional Office
Little Rock, AR

214D
C 21 932 709
BLAKE, James L.

Subject: Claim for service connection for cause of death under 38 CFR 3.311b

1. We have reviewed the facts in this case and find that additional development is necessary.

2. The death certificate shows cause of death as pancytopenia secondary to 5-Fluorouracil therapy, carcinoid metastatic to the liver, probable gram negative sepsis. We need verification of the primary site to determine whether the disease is "radiogenic" as defined in 38 CFR 3.311b(b)(2). If the primary site is not radiogenic, the claim may be denied by the rating board. If it is, the case should be returned to this Service (214D) for further review.

GERALD P. MOORE, Director
Compensation and Pension Service

PEC: 2MJH1 214D/21

TO ACCOMPANY FOLDER

VETERANS ADMINISTRATION
REGIONAL OFFICE
[illegible] WEST THIRD STREET
[illegible]

October 14, 1986

Director, Compensation and
Pension Service (212A)
Department of Veterans Benefits
Veterans Administration Central
Office
810 Vermont Avenue, Northwest
Washington, DC 20420

XC-21 932 709
BEARD, James L.

SUBJ: Review of radiation claim

1. The accompanying file is forwarded in accordance with your letter of December 5, 1985, reference implementation of 3.311B Code of Federal Regulations.

2. The late Mr. Beard served in the United States Army on active duty from February 20, 1940, to February 6, 1946, and from August 23, 1946, to March 30, 1953. At age 35, while assigned to the 112th Field Artillery Group as a Major, he observed Shot DOG of Operation Buster-Jangle at the Nevada Atomic Test Site. Recorded dosimetry showed a dose of 0 rem gamma. The neutron radiation dose is estimated at 0. Internal exposure potential was less than 0.150 rem to the bone. Twenty-eight years later, cancer of the liver was diagnosed. No family members related by blood are said to have had cancer. Exposure to carcinogens or excessive exposure to sunlight was denied. The veteran worked for the Arkansas State Employment Security Division 1954 to 1962, as a Department of Army Civilian 1962 to 1965, and for the Arkansas Rehabilitation Service 1965 to 1978. The veteran did not smoke for 20 years prior to his death.

KAY ROBERTS
Director

211A/Bd 1/00 WG:eel

FEB 27 1987

Director (21)
VA Regional Office
Jackson, MS

214D
C 13 924 373
HARRIS, Robert L.

Subject: Radiation review under 38 CFR 3.311b

1. Letter from the Navy NTPR dated October 2, 1986, discloses a calculated radiation exposure based on a scientific dose reconstruction has been assigned to the veteran as there is no record of radiation exposure for him. This calculated exposure is 0.23 rem gamma and has an upper error bound of 0.53 and a lower error bound of 0.11 rem. Preliminary research indicated that any internal dose for the veteran would have been less than a 0.150 rem fifty year bone dose commitment.

2. Although the veteran states skin cancer beginning in 1970, the earliest medical evidence of record of squamous cell carcinoma dorsum left hand is in July 1985. There is no evidence of post-service radiogenic exposure. The family history is negative for cancer. The veteran reports normal sun exposure.

3. Following review of the evidence in its entirety, there is no reasonable possibility the squamous cell carcinoma dorsum left hand resulted from radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

JEK: 2MJH1 214D/21

TO ACCOMPANY FOLDER

FEB 26 1987

Director (21)
VA Regional Office
Milwaukee, WI

214D
XC 12 615 449
HARRILL, Billy S.

Subject: Reconsideration of service connection for cause of death under 38 CFR 3.311b

1. Reply from Navy NTPR dated September 18, 1986 establishes that veteran served aboard the USS MCKEAN during the occupation of Japan. Whether or not he visited Hiroshima or Nagaski cannot be determined from Navy records. Detailed dose reconstructions have determined the maximum possible radiation dose that veteran might have received from external radiation, inhalation, and ingestion is less than one rem.

2. Small cell anaplastic carcinoma of the lung was diagnosed in November 1982. Hospital summary November 1982 shows that veteran gave history that his mother died from cancer and brother had lip cancer. He gave history of smoking 2 packs of cigarettes a day for 40 years, quit smoking and at time of summary had been smoking a pipe for 1½ years. Veteran's employment history after service showed bartending only.

3. Based upon the evidence in its entirety, the evidence fails to show any reasonable possibility that the veteran's carcinoma of the lung resulted from his low level of radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

PEC: 2MJH1 214D/21

TO ACCOMPANY FOLDER

October 24, 1986

Adjudication Officer (21)
VARO, Milwaukee, WI
XC 12 615 449 HARRILL, Billy S.

Chief Benefits Director
VACO, 214D
Washington, DC

1. Veteran's service: 4-6-42 to 11-27-46 Navy
11-6-50 to 11-27-51 Navy.

2. Circumstances including dates of exposure: The veteran's widow states that the veteran was exposed to radiation while aboard the USS McKean DD784 and also the LST 845. Navy data confirmed that the veteran served aboard the USS McKean (DD784) during the occupation of Japan.

3. Disease claimed: the veteran was shown to have small cell anaplastic carcinoma of the lung in November 1982.

4. Age at time of exposure: 21 years.

5. Dosage assessment: report from the Department of the Navy states that using all possible "worst case" assumptions, the maximum dose the veteran might have received was less than one rem.

6. Time lapse between exposure and onset of disease: 36 years, 11 months.

7. Pertinent family history and employment history: the veteran's employment during his two periods of service and after service consisted entirely of tending bar.

8. Other information relevant to determine cause of the disease: the veteran does not know of any exposure to carcinogens. The veteran's widow stated that the veteran smoked from the age of 21. She also stated that the veteran suffered from skin cancer even though he avoided the sun.

9. Please consider the widow's claim for service connection for cause of death due to small cell anaplastic carcinoma of the lung. The veteran died on 12-4-83.

DOUGLAS A. WALLIN
Adjudication Officer

File to accompany

2111/21 RCI:ar

FEB 26 1987

Director (21)
VARO
Detroit, MI

214D
C 28 888 005
KRANZ, Fred E. Jr.

SUBJ: Radiation claim

1. Information received from the Army USTPR shows the veteran participated in Operation TEAPOT. Total recorded dose of radiation he received is 0.695 rem gamma. It was also stated that the veteran would have received a probable dose of 0.063 neutron with a possible high of 0.153 rem neutron to a possible low of 0.016 rem neutron. Internal exposure potential was less than 0.150 rem to the bone.

2. Discharge summary from VAMC, Allen Park for the period February 23, 1986 to March 7, 1986 shows veteran underwent excision of a melanoma of the right chest on February 25, 1985.

3. Following review of the evidence in its entirety we are of the finding that there is no reasonable possibility that the veteran's skin cancer was due to radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service
ACQUADRO:tyr 2TYR1/KRANZ 214D/21

TO ACCOMPANY FOLDER

October 31, 1986

329/211A
C 28 888 005
KRANZ, Fred E., Jr.

Deputy CBD for Field Operations (201/214D)
VA Central Office
810 Vermont Avenue, NW
Washington, DC 20420

SUBJ: Consideration of Radiation Claim.

1. The following case is submitted for consideration per CBD letter dated December 5, 1985.

C-Number 28-888-005, KRANZ, Fred E., Jr.

a. U.S. Army, January 20, 1953 to January 19, 1956.

b. Army data confirm that in 1955 the veteran observed SHOT APPLE II of operation TEAPOT at which time he was a member of a Provisional Company of the 8th Infantry Division from Fort Carson, Colorado. This unit was assigned to Project 41.1, Infantry Regimental Communications Test.

c. Melanoma of the right chest.

d. Twenty-two years old.

e. Total exposure 0.695 rems gamma.

f. Melanoma of right chest first diagnosed in February 1986.

g. Male; father with rectal cancer, mother and brother with multiple sclerosis, and a sister with breast cancer; veteran worked in a mill and later for a ready-mix company driving a truck for six or seven years and after that worked in maintenance taking care of ballfields until 1979.

h. The veteran smokes one and a half packs of cigarettes daily for thirty years with history of alcohol consumption until five or six years ago. He has a long history of working outdoors.

i. None.

GORDON W. CLOWNEY
Director

TO ACCOMPANY CLAIMS FILE

FEB 26 1987

Director (21)
VARO
St. Petersburg, FL

214D
C 7 168 574
SKOW, Frank A.

SUBJ: Radiation exposure claim

1. The veteran's file is returned for further development. The Army NTPR is to be contacted in accordance with current procedures to obtain the dosage assessment of radiation received by the veteran.

2. Upon completion of the required development the folder is to be returned to Central Office, attn: 214D.

GERALD P. MOORE, Director
Compensation and Pension Service

ACQUADRO:tyr 2TYR1/SKOW 214D/21

TO ACCOMPANY FOLDER

FEB 27 1987

Director (21)
VA Regional Office
Houston, TX

C 22 564 828
NEWTON, Irving

SUBJ: Radiation review under 38 CFR 3.311b

1. Letter from the Air Force NTPR dated 6/9/86, discloses fallout radiation exposure was not expected during OPERATION Sandstone so film badges were not issued, but that such fallout did occur. A calculated fallout dose has been assigned the veteran for Operation Sandstone of 0.67 (low), 0.93 (high) and 0.80 (mean). He also has badge dose for Hard Tack I of 1.073. His total radiation exposure dose is noted as 2.003.

2. Adenocarcinoma of the colon was diagnosed in 1981. Veteran was requested to furnish evidence of his degree of participation during his period of participation in tests and any post-service exposure to radiation but he did not respond. History obtained during his hospitalization in 1981 noted a positive family history of cancer with one sister having colon carcinoma.

3. Following review of the medical evidence in its entirety, there is no reasonable possibility the adenocarcinoma of the colon resulted from radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

JEK:tyr 2TYR1/NEWTON 214D/21

TO ACCOMPANY FOLDER

VETERANS ADMINISTRATION
REGIONAL OFFICE

DEC 5 1986

Director, Compensation & Pension Service (212A)
VA Central Office
810 Vermont Avenue N.W.
Washington, D. C. 20420

362/212R
C 22 564 828
NEWTON, Irving

SUBJ: Service Connection for Carcinoma of the Colon Secondary to Radiation Exposure in Service

1. The veteran served honorably on active duty in the Army from July 23, 1940, to January 10, 1944, and in the Air Force from January 11, 1944, to February 17, 1966. He was born on April 4, 1920.

2. On September 4, 1981, the veteran's initial claim for disability compensation based on service connection of carcinoma resulting from radiation exposure was received. The claim was disallowed on October 26, 1981, and the veteran did not file an appeal. A reopened claim for disability compensation based on service connection of adenocarcinoma of the colon was received on December 6, 1985. The veteran alleged that he received radiation exposure in the Sandstone Project at Enewitoc in 1948, and in Project Umbrella at the same location in 1958. A report from the Service Department shows that fallout did occur during the Sandstone Operation but no film badges were issued to record the exposure. The Defense Nuclear Agency has calculated radiation dose exposure for participants assigned with the 70th Air Force Base Unit as follows: Low .067, High .093 with a mean .080. Film badge dosage for Hard Tack I, in 1958, with the 57th Weather Recon Squadron showed 1.073 and .930 for a total of 2.003.

3. A summary of hospitalization at Brooke Army Medical Center beginning August 25, 1981, shows that the veteran was admitted after he was found to have heme positive stool on a rectal examination. Subsequent followup showed a constricted lesion in the transverse colon. This was subsequently diagnosed as adenocarcinoma of the colon, Duke's stage B negative nodes.

4. The veteran did not furnish any additional information regarding exposure to carcinogenics since his service discharge; however, his claims folder is referred for review since he has a radiogenic disease and some possible exposure during service.

TED W. HYATT
Director

Enclosure
Claims Folder

212R/00 RR:vrh

FEB 26 1987

Director (21)
VA Regional Office
Chicago, ILL

214D
XSS 399 20 0238
LERNOR, Simon E.

SUBJ: Radiation review 38 CFR 3.311b

1. After initial review the veteran's folder was referred to the Chief Medical Director for an opinion as to any causal relationship between the veteran's radiation exposure in service and his cancer of the kidney with widespread metastases.

2. An opinion was received that it is unlikely that the veteran's death was related to his military service. There was a 29 year interval from time of exposure until the tumor was recognized. His total recorded dose was less that than often received from diagnostic x-ray studies involving the kidney area such as studies of the spine.

3. After reviewing all the evidence, including the medical opinion, there is no possibility that the veteran's carcinoma was related to the low level of radiation exposure in service.

4. As rating of April 30, 1986 showed an erroneous rationale for denying the claim, corrective rating action should now be taken.

GERALD P. MOORE, Director
Compensation and Pension Service

MCV:tyr 2TYR1/LERNOR 214D/21

TO ACCOMPANY FOLDER

MAR 2 0 1987

Director (21)
VA Regional Office
Detroit, MI

214D
C 14 890 854
KINZEL, Frederick J.

SUBJECT: Review of radiation claim (RO letter dated January 9, 1987)

1. The veteran served honorably in the U.S. Navy from December 11, 1945, to November 14, 1947. In March 1972 Mr. Kinzel was admitted to the hospital for a two to three month history of rectal bleeding. The final diagnosis was adenocarcinoma of the colon. He underwent a combined abdominal-perineal resection of the rectosigmoid and anus. Mr. Kinzel has noted that none of his family has developed cancer. There was no known exposure to carcinogens prior to, or subsequent to, military service.

2. The Navy NTPR advised that Mr. Kinzel served aboard the USS PENSACOLA during Operation CROSSROADS in July 1946. In their letter of February 14, 1986, the NTPR advised that a reconstructed dose of 0.95 rem gamma had been assigned. The upper boundry of error was 1.29 rem gamma and a lower boundry of error of 0.78 rem gamma. There was no potential for neutron exposure to personnel at Operation CROSSROADS. Any internal dose would have been less than 0.150 rem fifty year bone dose commitment.

3. Upon consideration of all the evidence of record, including the low level of radiation exposure in service, there is no reasonable possibility that the veteran's adenocarcinoma of the colon was the result of radiation exposure in service.

ARLD P. MOORE, Director
Compensation and Pension Service

DAVENPORT:tyr 3TYR2/KINZEL 214D/21

TO ACCOMPANY FOLDER

MAR 20 1987

Director (21)
VA Regional Office
Detroit, MI

214D
C 14 890 854
KINZEL, Frederich J.

SUBJECT: Review of radiation claim (RO letter dated January 9, 1987)

1. The veteran served honorably in the U.S. Navy from December 11, 1945, to November 14, 1947. In March 1972 Mr. Kinzel was admitted to the hospital for a two to three month history of rectal bleeding. The final diagnosis was adenocarcinoma of the colon. He underwent a combined abdominal-perineal resection of the rectosigmoid and anus. Mr. Kinzel has noted that none of his family has developed cancer. There was no known exposure to carcinogens prior to, or subsequent to, military service.

2. The Navy NTPR advised that Mr. Kinzel served aboard the USS PENSACOLA during Operation CROSSROADS in July 1946. In their letter of February 14, 1986, the NTPR advised that a reconstructed dose of 0.95 rem gamma had been assigned. The upper boundry of error was 1.29 rem gamma and a lower boundry of error of 0.78 rem gamma. There was no potential for neutron exposure to personnel at Operation CROSSROADS. Any internal dose would have been less than 0.150 rem fifty year bone dose commitment.

3. Upon consideration of all the evidence of record, including the low level of radiation exposure in service, there is no reasonable possibility that the veteran's adenocarcinoma of the colon was the result of radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

DAVENPORT:tyr 3TYR2/KINZEL 214D/21

TO ACCOMPANY FOLDER

APR 30 1987

Director (21)
VA Regional Office
San Francisco, CA

214D
C 23 083 957
MCNEIL, Robert L.

SUBJ: Radiation review under 38 CFR 3.311b

1. Opinion from the Chief Medical Director, with which we concur, states it is unlikely that the carcinoma of the cecum is related to the radiation exposure in service. This opinion further states the total occupational exposure to the area of the veteran's cecum was, in fact, less than that received from the barium enema examination that resulted in the diagnosis of the cancer.

2. Considering the above opinion, as well as the low level of exposure, it is our opinion that there is no reasonable possibility the carcinoma of the cecum resulted from radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

Approved: _____
R. J. VOGEL
Chief Benefits Director

KANE:tyr 4TYR3/MCNEIL 214D/21

TO ACCOMPANY FOLDER

Veterans Administration

Memorandum

Date: April 8, 1987

From: Director, Radiology Service (114)

Subj: MCNEIL, ROBERT L. C 23 083 957

To: Chief Benefits Director (214D)

1. Veteran served on a nuclear submarine. A DD Form 1141 is available with entries dating from July 1, 1960 through September 27, 1963. This indicates a cumulative exposure over the three plus years of 0.878 rem. The maximum in any one month was 0.192 rem. He received less than 0.5 rem in any year. There are no other records of exposure to ionizing radiation except for some reports of diagnostic examinations.

2. In January 1984, a carcinoma of the cecum was diagnosed. This was excised in February 1984.

3. The veteran's folder includes a statement from Jerome H. Levinson, M.D., "If he was exposed to larger than normal episodes of radiation...this certainly would be a suspected cause."

4. The radiation received was well within recommended limits set for the general public (reference NCRP Report 39 dated 1980) and less than one-tenth of those set for occupational exposure.

5. The total occupational exposure to the area of Mr. McNeil's cecum was, in fact, less than that received from the barium enema examination that resulted in the diagnosis of the cancer.

6. It is unlikely that the carcinoma was related to the radiation exposure in service.

Arthur D. Graham, M.D.

ARTHUR D. GRAHAM, M.D.

Attachment: Medical Records

VA FORM 2105
SEP 1984

MAR 20 1987

Chief Benefits Director (214)

Medical opinion regarding relationship between adenocarcinoma of the cecum to radiation exposure in service

Chief Medical Director (11P)

1. The veteran served in the U.S. Navy from November 1957 to October 1963. Service medical records include DD Form 1141 which shows the veteran received an accumulative radiation total dose of .878 from July 1, 1960 to September 27, 1963. These records also contain hematology reports studies conducted at the NAVNUCLEAR Power School, Mare Island, California in May 1960 and June 1961. They are negative for complaints or treatment for a cancer condition.

2. Carcinoma of the cecum was diagnosed in January 1984. Veteran furnished a history of his employment before and after service. He stated there is no known leukemia or cancer in his family. He reports smoking some cigarettes as a teenager and that this increased to one to one and one half packs of cigarettes a day while in the U.S. Navy and continued until he quit in February 1984.

3. The claims folder is referred to you in accordance with 38 CFR 3.311b(a)(2)(iii) for preparation of a dose estimate, to the extent feasible, based on available methodologies. Please also review the folder and express an opinion whether, based on sound scientific and medical evidence, it is either likely, unlikely or approximately as likely as not that the veteran's carcinoma of the cecum resulted from his radiation exposure in service.

R. J. VOGEL

JFK: 2RCB1 214D/21/203

C 23 053 957 McNeil, Robert L.

MAR 27 1987

Director (21)
VA Regional Office
Salt Lake City, UT

214D
SS 450 44 0244
McCORMICK, Terrel D.

Subject: Radiation review 38 CFR 3.311b

1. After initial review, the veteran's folder was referred to the Chief Medical Director for preparation of a dose estimate, to the extent feasible, based on available methodologies. Since the veteran indicated exposure to asbestos in service, an opinion was also requested whether there was clinical evidence of asbestosis, and its relationship to the adenocarcinoma, left upper lobe.

2. The folder was referred to the Armed Forces Institute of Pathology. They reported an occupational (atomic power plant) exposure to radiation of 9.957 rem due to his 1968-1977 nuclear power work, according to his DD Form 1141. They reported his tobacco use was considered the most probable cause of the lung cancer, that tissue slides yielded no evidence of asbestosis or ferruginous bodies, and that the veteran's radiation exposure was regarded as only a remote possibility in the development of cancer.

3. The Chief Medical Director's staff reported the veteran's total recorded exposure was 9.957 rem for the period June 13, 1968 to March 26, 1977. The dose received was always less than 5.0 rem per year and averaged slightly more than 1.0 rem per year. Both of these are well within the United States Nuclear Regulatory Commission guidelines. The Armed Forces Institute of Pathology letter was concurred in, and he expressed an opinion that it is unlikely that the carcinoma was related to the exposure to ionizing radiation in service.

2.

SS 450 44 0244 McCORMICK, Terrel D.

4. After reviewing all the evidence under 38 CFR 3.311b, it is our opinion there is no reasonable possibility that the veteran's adenocarcinoma, left upper lobe, was due to the low level of radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

MCV: 4MJH2 214D/21

Approved: _____
R. J. VOGEL, Chief Benefits Director

Veterans Administration

Memorandum

Date: April 8, 1987

From: Director, Radiology Service (114)

Subj: MCCORMICK, TERRELL D. SS 540 44 0244

To: Chief Benefits Director (214D)

1. Mr. McCormick worked with ionizing radiation from 1968 to 1977 while in the service. In 1985 he was diagosed as having adenocarcinoma of the upper lobe of his left lung. The question is raised regarding any relationship between the cancer and the radiation exposure.

2. Radiation records are available from June 13, 1968 through March 26, 1977. Total exposure during that time was recorded as 9.957 rem. The dose received was always less than 5.0 rem per year and averaged slightly more than 1.0 rem per year. Both of these are well within the United States Nuclear Regulatory Commission guidelines.

3. I would concur in the letter signed by Colonel Robert R. McMukin, Director, Pathology and Allied Sciences Service, Armed Forces Institute of Pathology, dated February 19, 1987.

4. It is unlikely that the carcinoma was related to the exposure to ionizing radiation in service.

Arthur D. Graham, M.D.

ARTHUR D. GRAHAM, M.D.

Attachment: Medical Records

VA FORM 2105
SEP 1984

MAR 20 1987

Chief Benefits Director (214D)

Radiation review 38 CFR 3.311b(c)

Chief Medical Director (11B)

1. This is in further reference to our memorandum of October 1, 1986 and the report of February 19, 1987 from the Armed Forces Institute of Pathology.

2. The Armed Forces Institute of Pathology reports toxic substance exposure for the veteran as follows:

a) Thirty pack years of tobacco smoking;
b) occupational (atomic power plant) exposure to radiation of 9.957 rem from 1968-1977;
c) asbestos exposure during the same time frame; and
d) occupational exposure to trichlorethane from 1957-1964.

3. They reported the veteran's tobacco use is considered the most probable cause of the lung cancer, that tissue slides yielded no evidence of asbestosis or ferruginous bodies, and that the veteran's radiation exposure is regarded as only a very remote possibility in the development of cancer.

4. Based on the report from the Armed Forces Institute of Pathology, the veteran's records are being referred to you for review and expression of opinion under 38 CFR 3.311b(c). Please express your opinion, setting forth your rationale, whether it is at least as likely, unlikely, or approximately as likely as not that the veteran's widespread carcinoma resulted from exposure to ionizing radiation in service.

R. J. VOGEL

MCV: ZM341 214D/21/203

SS 540 44 0244 McCORMICK, Terrel D.

APR 13 1987

Director (21)
VA Regional Office
Boise, ID

214D
XC 28 071 4P3
YOUNG, George P.

SUBJECT: Review of radiation claim (RO letter dated October 27, 1987)

Based on a request to the Chief Medical Director (CMD) a medical opinion, with which we agree, has been furnished concerning the relationship between the veteran's metastatic lung cancer which caused his death and his exposure to radiation and asbestos. The CMD has advised that the metastatic lung cancer Mr. Young suffered from was not the result of exposure to radiation during service. However, he has also advised that the factors involved favor the finding that the carcinoma of the lung was primarily due to asbestos. Based on this opinion, service-connection for the cause of death should be established.

GERALD P. MOORE, Director
Compensation and Pension Service

Approved: _____
R. J. VOGEL
Chief Benefits Director

DAVENPORT:tyr 4TYR1/YOUNG 214D/21

TO ACCOMPANY FOLDER

Veterans Administration

Memorandum

Date

From Director, Radiology Service (114)

Subj Young, George F., XC 28 071 483

To Chief Benefits Director (214D)

1. Mr. Young served in the U.S. Navy from June 10, 1960 to July 5, 1968, and September 5, 1968 to March 31, 1980. There is a letter in his file dated January 21, 1986, signed by LCDR R. J. Schultz that states "It is probable that he was exposed to some type of asbestos products during his Naval service." There is, also, a letter dated July 21, 1986, signed by the Head, Radiation Safety Department U.S. Navy that lists radiation exposure for the period September 8, 1972 - December 31, 1973 as 0.000 rem. (During service aboard the USS Patrick Henry). It also lists exposure of 0.026 rem during the period May 6, 1975 to March 3, 1977 (while serving on the USS Queenfish).

2. A mucus secreting ardenocarcinoma of the left lung was diagnosed in November, 1982. The question is raised regarding a relationship of the carcinoma to the radiation and/or asbestos exposure.

3. The National Council on Radiation Protection and Measurements (NCRP Report 39 (1971), page 106) recommends a maximum permissible dose limit of 0.5 rem in any one year for the public and 5 rem for occupational exposure. The Federal Radiation Council (Federal Register 5/18/60P recommends a maximum permissible accumulated dose to the whole body of 3.0 rem in any 13 week period for radiation workers. Mr. Young's total dose while serving on both the USS Patrick Henry and the USS Queenfish is 0.026 rem. Another dose comparison would be that a common chest x-ray examination (PA and lateral) would give an x-ray exposure dose to the skin of the chest considerably more than the 0.026 rem Mr. Young received from his shipboard duty. (ref: Radiation Protection by Jacob Shapiro, 1981, page 367). It is important to note that Mr. Young had a mucus producing adenocarcinoma of the lung as opposed to an epidermoid or anaplastic epithelial cell tumor. The cell type most often associated with exposure to radiation is epidermoid or anaplastic epithelial. (ref: BEIR Report, page 146).

4. Regarding asbestos exposure: The two most common tumors related to asbestos exposure are mesothelioma and bronchogenic carcinoma.

(cont.)

5. In summary: It is impossible to completely exclude radiation and/or asbestos exposure as being related to the development of the lung cancer but it is extremely unlikely that either were involved.

ARTHUR D. GRAHAM, M.D.

March 17, 1986

Program Chief for Cardiovascular Diseases, Medical Service (111)

YOUNG, George R. XC 28 071 483

Chief Benefits Director (214D)

THRU: DACMD for Clinical Services (11B)

1. We have had for review the medical file, the chest x-rays and tissue sections of Mr. Young as well as the report of Dr. Graham. This is a claim for VA benefits based on the premise of personal injury resulting from both excessive exposure to ionizing radiation and exposure to asbestos dust. The injury is referenced as a mucus secreting carcinoma of the lung first diagnosed in November 1982 at VA Medical Center, Spokane. All the records are returned herewith.

2. The issue of radiation injury has been adequately addressed by Dr. Graham, whose report is attached. I can add only the comment that I subscribe to the concept that radiation injury is linearly related to dosage at the point of tissue impact. If the radiation exposure had been general or diffuse, such as would have been possible if Mr. Young had worked in proximity to radition emitting sources (e.g. a reactor) the recorded REM dosage, was insufficient to account for the lung carcinoma. I explored the possibility that Mr. Young may have inhaled radioactive particulates by placing the provided tissue slides on photographic film in the dark room for two weeks. No evidence of focal radioactivity was found.

3. The asbestos issue is entirely different. The U.S.S. Patrick Henry is well known to me as a ship which has yielded numerous cases of asbestosis and asbestos related lung cancer and mesothelioma. Many components of the ship were heavily insulated with asbestos materials. I have seen a lesser number of cases of asbestosis emanating for dust exposure on U.S.S. Queenfish. Depending on what Mr. Young did, while on these ships, (or what others were doing around him while he was on board), the potential for asbestos dust exposure would have been real.

4. The question is cleared up by review of the chest x-rays. These show decided asbestosis as well as the lung carcinoma. He had bilateral diffuse pleural thickening with blunting of the left costophrenic angle, the interlobar fissures were thickened and there was slight profusion of small irregular parenchymal focal opacities. The right ventricular outflow tract was also enlarged, indicative of pulmonary hypertension. The latter finding is supported by a p02 value of only 42 torr. This could not be accounted for by the carcinoma, since the latter was still of limited size when the blood gas value was obtained.

5. The tissue sections available for examination did not include any lung tissue, being limited to carcinoma within lymphoid tissue. The carcinoma is a classical mucigenous adenocarcinoma of the kind which

SUBJ: YOUNG, George R. XC 28 071 483

arises from the cells lining the small airways. It was composed almost entirely of cells containing abundant secretory material. Some of the latter was stained positive by the mucicarmine reagent and some stained positive with the period acid Schiff reagent. (See photos and their legends).

6. Of relevance to the question of etiology was the presence of numerous tremolite asbestos fibers, both within the neoplasm and more particularly in the lymphnodal tissue surrounding the tumor. (See illustrations). This proves that Mr. Young did have prior exposure to asbestos dust. Tremolite is a normal constituent of Canadian chrysotile asbestos, a major insulation product in Naval vessels.

7. Mr. Young did also smoke cigarettes for many years (60 pack years). This factor should also be considered. However, the carcinogenic potency of asbestos dust, particularly chrysotile, is more than a hundred times that of cigarette carcinogens. In favor of this being a carcinoma primarily due to the asbestos factor, is the mucigenous nature of the tumor. This variant of carcinoma is rarely seen in cigarette smokers, but is often present in persons who have had industrial environmental exposures. I have induced this type of neoplasm many times in rats exposure to beryllium sulfate, but it has never been observed in animals exposed only to cigarette smoke, which tends instead to induce squamous carcinoma. Radiation cancer also is, as Dr. Graham pointed out, squamous in nature.

GERRIT W.H. SCHEPERS, M. D.

Attachments

LEGENDS FOR MICROPHOTOGRAPHS

GEORGE R. YOUNG
XC 28 071 483

Photo 1: Demonstrates positive staining of mucin within various cells of the carcinoma. The mucin shows as red material (opposite marginal brackets). X 500

Photo 2: At larger magnification the intracellular mucin is better shown. Opposite "N" the nucleus of one of the cancer cells is shown also to contain mucin. X 1200

Photo 3: This is the control for the mucicarmine stain. This is intestinal mucosa. The red stained cells are goblet cells in the colonic epithelium, which normally are filled with mucin. X 500

Photo 4: Many of the cancer cells also stain positively with the periodic acid Schiff reagent (e.g. cells opposite the marginal arrows). The magenta color could be due to mucin or to glycosaminoglycan or to glucose in the cells. There were no digestion studies, so that we cannot be certain. The probability however is mucin. X 500

Photo 5: This is a phase contrast photo of the neoplasm to show that it does make occasional adenoma-like patterns (center and lower right). X 1200

Photo 6: Another phase contrast study to show the profusion of "empty" cancer cells. This is indicative of the predominant cell being secretory. X 1200

Photo 7: This is a polarised light photo of the carcinoma. In the center there are several white dots. These are the haloes of birefringent tremolite fibers. X 300

Photo 8: This is lymphoid tissue within which the neoplasm was imbedded. Again the light path has been polarised between two crossed Nicholls prisms to render visible the numerous tremolite asbestos fibers (white rods and dots). The profusion of these tremolite fibers in the lymph node indicates considerable prior inhalation exposure to Canadian asbestos products. X 500

GERRIT W.H. SCHEPERS, M. D.

DIAGNOSTIC EVALUATION FOR PNEUMOCONIOSIS
CHEST X-RAYS

PATIENT NAME Young, George R ID [illegible] SS# [illegible]
AGE 44/6 2 SEX M RACE OTHER
X-RAY Date 1/2/57 Type: (PA) LT Obl Tomo
9/6/51 2 yrs CT Other
Quality: Satisfactory ~ Unsatisfactory Problem:
PATIENT OCCUPATION TIME :
Medical History

THORAX: Normal ~ Flat Barrel Deformed (Sternophrenic Angle
DIAPHRAGM: Normal Elevated ✓ Low Flat Other
MEDIASTINUM: Broad ✓ Nodes Thyroid/Thymus Other
PLEURA: Normal
Parietal: Costal + Diaphragmatic [illegible]
Costophrenic Angle [illegible] Plaques
Visceral: +
Interlobar: Hor. + Oblique [illegible]
Accessory:
ILO Class [illegible]

PARENCHYMA

Normal
Small Opacities: Round: Profusion Size 3/3 Irregular: Profusion 1/2 Size
Large Opacities: Homogeneous Confluent
Atelectasis: General Local
Emphysema: Universal Compensatory
Hyperinflation Honeycombing
Vascularity: Increased Decreased
Pneumonia Infarction
Tuberculosis
Neoplasm
Other Disease
ILO Class 3/3 - 1/2

HEART:

Normal
Pericardium
Conus Pulmonalis Pulmonary Arteries D.A. // X
Right Outflow Tract ~ Diameter: R.D. L.D.
Aorta
Ventricles: Right + Left
Atria: Right Left
Dimensions: L 14 B R D // Vol. 411
COR PULMONALE ✓ +
Other Heart Disease

OTHER:

INTERPRETATION
Pneumoconiosis: Present ✓ Absent ____ Degree I
Type Nodular
Other Disease [illegible]

SIGNED G. W. Schepers Date 1/20/57

GERRIT W. H. SCHEPERS, M.B.,Ch.B.,M.D., ScD., DIM, FCCP, FACC

Abbreviations: N= No abnormality detected
NS=Not visualized
PP=Pleural Plaques
Ca=Calicified

GRADE I =slight
GRADE II = moderate
GRADE III = severe
GRADE IV = with complications

OCT 27 1986

347/21B
XC 2B 071 483
YOUNG, George R.

Director, Compensation and Pension Service (212A)
Veterans Administration Central Office
810 Vermont Avenue, NW
Washington, D. C. 20420

SUBJ: Request for advisory opinion concerning service-connection for adenocarcinoma of left lung and service-connection for cause of death related to radiation and/or asbestos exposure. (M21-1, 22.05.1e; 38 CFR 3.311b(b)(1)).

1. Veteran had honorable active service from June 10, 1960 to July 5, 1968 and from September 5, 1968 to March 31, 1980 in the Naval Service and was assigned to various ships and stations as a Radioman.

2. A response from the Naval Radiation Safety Department shows veteran did have gamma radiation of 00.005 rem from May to December 1975 and 00.021 rem gamma radiation from December 1975 to December 1976. It is also indicated by the Naval Department that he had probable exposure to asbestos during his naval service because of his occupation as a Radioman.

3. A claim for service-connection for lung cancer was received from the veteran during his lifetime and a claim for service-connection for cause of death related to adenocarcinoma of the lung has been received from the veteran's widow, claiming death to be related to service, either directly or through exposure to radiation or asbestos. Veteran was about 35 years of age at the time of the recorded exposures of radiation.

4. The first evidence of any lung cancer symptoms was in July 1982 when veteran started having a nonproductive cough and left anterior chest pain. He was first diagnosed as having adenocarcinoma of the left lung with local metastasis in January 1983, nearly three years subsequent to his release from active service.

5. The widow reports the veteran's employment history as having worked in a silver mine from September 1980 to September 1981 as an instrument repairman working above the ground at the mine. He was required to wear a respirator on the job. She reported the veteran did smoke, but not heavily and mainly only smoked a pipe while on submarine duty for 20 years. She states he seldom smoked at all the last year and one half of his life, she states he was too ill to be gainfully employed following the job at the mine, but did take some business courses at a college for a short period of time. She states the veteran's family had no history of any cancer disease for causes of death.

6. X-ray films of the chest dated in September 1980, December 1981 and February 1983 have been reviewed by a staff radiologist. These show the first evidence of a left hilum mass on films taken on February 23, 1983.

7. For your review, the pertinent x-ray films, tissue blocks, pathology slides and clinical file accompany this request.

DAVID R. BARRETT
Director

21B/00 HFH:pv

MAY 13 1987

Director (21)
VA Regional Office
Buffalo, NY

214D
SS 072 16 0028
PRATT, Henry L.

Subject: Reconsideration of radiation claim under 38 CFR 3.311b

1. Reply from Army NTPR dated February 3, 1987 establishes that veteran, who participated in Operation BUSTER-JANGLE, has a recorded radiation dose of zero rem gamma for the period October 19, to December 12, 1951. A scientific dose reconstruction indicates that due to the distance his unit was from ground zero, he had virtually no potential for neutron radiation exposure.

2. Carcinoma of the duodenum and colon was treated in December 1977, date of diagnosis unknown. The veteran is not aware of any exposure to radiation in employment. The only other family member with cancer was his father. The veteran has not smoked for the past 20 years.

3. Following review of the evidence in its entirety, it is our opinion that based on the low level of radiation exposure in service, there is no reasonable possibility that the veteran's carcinoma of the duodenum and colon was the result of radiation exposure.

GERALD P. MOORE, Director
Compensation and Pension Service

PEC: JMJH2 214D/21

Approved: _____
R. J. VOGEL
Chief Benefits Director

TO ACCOMPANY FOLDER

Regional Office

Federal Building
111 W. Huron Street
Buffalo, NY 14202

Veterans Administration

March 4, 1987

In Reply Refer To

307/21

Director
Compensation & Pension Service /214B
VA Central Office
810 Vermont Avenue, N. W.
Washington, DC 20420

SUBJECT: CSS 072 16 0028
PRATT, Henry L.
Advisory opinion in accordance with C.F.R. 3.311B(C) regarding claim for disability resulting from exposure to ionizing radiation.

1. Veteran had honorable active service from April 29, 1944 to June 14, 1946 in the U. S. Navy, and from January 23, 1951 to September 10, 1952 in the U. S. Army.

2. The U. S. Army and Joint Service Environmental Support Group has verified that veteran was exposed to ionizing radiation on November 1, 1951 at Camp Desert Rock, Yucca Flat, while an observer of Shot Dog of Operation Buster - Jangle. Observers were located approximately seven miles from Ground Zero. After viewing the fireball and resultant cloud, the observers were taken by truck to an area approximately 1,750 Yards from Ground Zero.

3. Veteran has claimed service connection for carcinoma of the colon. Veteran's private MD has stated that veteran underwent surgery for carcinoma of the colon in December 1977. This is the earliest date of record to establish diagnosis of claimed condition. Veteran's original claim was filed on October 27, 1978 and was denied by rating action dated September 13, 1979, as evidence at that time indicated exposure of zero MREM whole body gamma dose. Veteran has reopened his claim under the provisions of the veteran's Dioxin and radiation exposure Compensation Standards Act on March 19, 1986.

4. Veteran was age 29 at time of exposure.

Veterans Administration

In Reply Refer To

-2-

CSS 072 16 0028
PRATT, Henry L.

Compensation & Pension Service
Washington, DC 20420

5. Revised dosage assessment from the U. S. Army and Joint Service Environmental Support Group dated February 3, 1986 confirms recorded radiation dose of zero REM gamma. Scientific dose reconstruction has indicated that veteran had virtually no potential for exposure to neutron radiation. Research does indicate that veteran had an internal exposure potential less than 0.150 REM to the bone.

6. Approximate time lapse between exposure and the onset of disease was 26 years.

7. Veteran has indicated that his father, whose death occurred in 1942, was told that he had cancer. (Veteran did not further specify what type of cancer). Veteran further states that he was employed as an Electrical Engineer for Singer-Link Corporation until 1978, and that he had no other exposure to carcinogens other than the nuclear weapons test of November 1, 1951. Veteran does not smoke and has not smoked in the past 20 years.

JAMES O. CRANE
Adjudication Officer

C-Folder to accompany

13:el

Director (21)
VA Regional Office
San Francisco CA

214D
C 21 765 670
BALAND, Allen C.

SUBJ: Radiation review under 38 CFR 3.311b

1. The radiation dose estimate furnished by USAF WTPR shows the veteran's calculated radiation dose for entire RANGER series was less than 3 millirem.

2. Pathology report of June 18, 1984 found the veteran had villous adenoma of the cecum with focal adenocarcinoma.

3. Following review of the evidence in its entirety, it is our opinion that based on the low level of radiation exposure in service, there is no reasonable possibility that the veteran's colon cancer was the result of radiation exposure.

GERALD P. MOORE, Director
Compensation and Pension Service

Approved: _____
R. J. VOGEL
Chief Benefits Director

RHC:tyr 4TYR2/BALAND 214D/21

TO ACCOMPANY FOLDER

MAR 0 6 1987

Director (21)
VA Regional Office
Little Rock, AR

214D
C 15 881 397
BLAIR, Curtis J.

SUBJ: Radiation review 38 CFR 3.311b

1. The NAVY NTPR reports the veteran participated in Operation Sandstone. He apparently was not issued a film badge. He was given a calculated exposure of 0.04 rem gamma, and there was an upper bound of 0.08 rem gamma. No lower error bound was available.

2. A review of the SMP's reveals he did participate in Operation SANDSTONE from 2/28/48 to 5/21/48.

3. The veteran is claiming service connection for basal cell carcinoma of the right pinna. There is no evidence of the condition in service, or within one year of discharge. He reports his employment history consists of outdoor work as a heavy equipment operator in land clearing, and as a professional truck driver.

4. Considering all the evidence under 38 CFR 3.311b, there is no reasonable possibility that the veteran's basal cell carcinoma was related to the low level of radiation exposure in service.

5. Take corrective action under 38 CFR 3.105(a) and (d) to correct rating of 7/31/86, and sever service connection for basal cell carcinoma of the right pinna.

6. In radiation claims, when advising the veteran of a decision, a dictated, and not a Target generated letter must be used. See White Paper of 1/10/86, and M21-1, 22.05.1e(5)

7. In his letter of 4/25/86 the veteran raised the issue of service connection for a right hand condition. The claim requires proper development and rating action.

GERALD F. MOORE, Director
Compensation and Pension Service

MCV:tyr 3TYP1/BLAIR 214D/21

MAR 0 6 1987

Director (21)
VA Regional Office
New Orleans, LA

214D
C 6 871 706
BROUILLETTE, Ean F.

SUBJ: Radiation review 38 CFR 3.311b

1. The Marine Corps HTPP advised that the veteran participated in the occupation of Nagasaki from 9/11/45 to 9/23/45. They advised the calculated radiation dose for personnel who arrived in the vicinity of Nagasaki harbor during that time, who spent one third of their tour of duty in the vicinity of ground zero is less than 0.01 rem.

2. The veteran is claiming service connection for skin cancer.

3. After reviewing all the evidence under 38 CFR 3.311b, there is no reasonable possibility that the multiple skin cancers were related to the low level of radiation exposure in service.

GERALD P. MOORE, Director
Compensation and Pension Service

MCV:tyr 3TYR1/BROUILLETTE 214D/21

TO ACCOMPANY FOLDER

Statement of

David Passamaneck

National Legislative Director

AMVETS

Before the

Veterans' Affairs Committee

Subcommittee on Compensation, Pension and Insurance

U.S. House of Representatives

on

H.R. 1811, S.453 and S.1002, Relating to Claims

Based on Exposure to Ionizing Radiation

May 20, 1987

334 Cannon House Office Building

Mr. Chairman, AMVETS is pleased to present our views regarding proposed legislation to establish presumptions of service-connection for veterans and their survivors on account of exposure to ionizing radiation during nuclear weapons testing and the occupation of Japan after World War II.

We deeply appreciate the bipartisan concern for this special and tragically bypassed group of American veterans exemplified by the legislation introduced by Dr. Rowland and Senators Murkowski and Cranston. Judging by the stone wall of indifference which has universally greeted the claims of atomic veterans for compensation and medical care since World War II, the proposed legislation which we are considering today is a courageous and compassionate opening of a new and just approach to this vexatious problem.

In accordance with the provisions of the Veterans' Dioxin and Radiation Exposure Compensation Standards Act (Public Law 98-542), enacted on 24 October 1984, the Veterans Administration (VA) enumerated some 15 radiogenic disorders to which the applicable radiation dosage presumption, as set forth in VA Regulations 3.311b, were to apply. No presumptions of service-connection were established by this legislative and regulatory initiative, however. The legislation which we are now considering seeks to remedy that ommission, recognizing the medically established long periods of incubation for the various cancers which may result from radiation exposure. Of the three bills under consideration, H.R 1811, introduced by Dr. Rowland; S.453, introduced by Senator Murkowski, the ranking minority member and former Chairman of the Senate Veterans' Affairs Committee; and S.1002, introduced by the current Chairman of the Senate Committee, S.1002 is by far the most comprehensive and preferable. It substantially recognizes, and prescribes presumptive service-connection for the conditions set forth in VA Regulations 3.311b. We support enactment of S.1002, however we do not necessarily favor the gradation in degree for rating purposes of the two classes of conditions as prescribed in proposed Section 452

of Title 38, as set forth in Section 3(a) of the bill. Such an unusual approach would be, in our view, an unwarranted distortion of the rationale of the rating schedule. Once service-connection is established, whether based on a presumption or not, compensation should be based on the degree of impairment as measured by the table in all cases.

Statement of

The American Legion

1608 K STREET, N. W.
WASHINGTON, D. C. 20006

by

PAUL S. EGAN, DEPUTY DIRECTOR
NATIONAL LEGISLATIVE COMMISSION
THE AMERICAN LEGION

and

PHILIP R. WILKERSON, ASSISTANT DIRECTOR
NATIONAL VETERANS AFFAIRS AND REHABILITATION COMMISSION
THE AMERICAN LEGION

before the

SUBCOMMITTEE ON COMPENSATION, PENSION AND INSURANCE
COMMITTEE ON VETERANS AFFAIRS
U.S. HOUSE OF REPRESENTATIVES

on

IONIZING RADIATION LEGISLATION

May 20, 1987

STATEMENT OF PHILIP R. WILKERSON, ASSISTANT DIRECTOR
NATIONAL VETERANS AFFAIRS AND REHABILITATION COMMISSION
THE AMERICAN LEGION
BEFORE THE SUBCOMMITTEE ON COMPENSATION, PENSION AND INSURANCE
COMMITTEE ON VETERANS AFFAIRS
U.S. HOUSE OF REPRESENTATIVES
MAY 20, 1987

Mr. Chairman and Members of the Subcommittee:

The American Legion appreciates this opportunity to present its views on three legislative proposals that would, in various ways, change the manner in which ionizing radiation exposure cases are adjudicated by the Veterans Administration.

Veterans who were exposed to ionizing radiation during their participation in nuclear weapons testing while serving on active military duty, or during service with the occupation forces in Hiroshima and Nagasaki following World War II, continue to find it exceedingly difficult to receive favorable determinations on their disability compensation claims from the Veterans Administration. Obviously, that is the reason why this legislation was introduced, and that this hearing is being held today. And The American Legion applauds the fact that this Subcommittee has moved forward to consider the measures under consideration.

H.R. 1811 - would amend section 312 of title 38, United States Code, by adding a new subsection that would establish, for the purpose of disability compensation, that the following diseases, in the case of any radiation exposed veteran, shall be considered to have been incurred in or aggravated by the veteran's participation in a radiation-risk activity during service on active duty during a period of war, notwithstanding the fact that there is no record or evidence of that disease during the period of service:

(1) All forms of leukemia, except chronic lymphatic leukemia, becoming manifest to a degree of 10 percent or more within 30 years after the last date on which the veteran participated in a radiation-risk activity.

(2) Polycythemia vera, thyroid cancer, bronchogenic carcinoma, or female breast cancer, becoming manifest to a degree of 10 percent or more within 30 years after the last date on which the veteran participated in such an activity.

For the purposes of the new subsection, the term, "radiation exposed veteran" means a veteran who, while serving on active duty during a period of war, was exposed to ionizing radiation as a result of the veteran's participation in a radiation-risk activity.

The term "radiation risk activity" means onsite participation in the atmospheric detonation of a nuclear device; or the American occupation of Hiroshima and Nagasaki, Japan, before July 1, 1946. The effective date of this amendment would be October 1, 1987.

S. 453 - would amend sections 312 and 333 of title 38, by adding a new subsection that would establish for the purpose of wartime and peacetime disability compensation, in the case of any veteran who, while serving on active duty, was exposed to ionizing radiation as a result of the veterans participation in the atmospheric detonation of a nuclear device; or the American occupation of Hiroshima and Nagasaki, Japan, prior to July 1, 1946, that the following diseases shall be considered to have been incurred in or aggravated by the veteran's participation in that activity, notwithstanding that there is no record of that disease during the period of active duty:

(A) all forms of leukemia, except chronic lymphatic leukemia, becoming manifest within 30 years after the last date on which the veteran participated in that activity;

(B) liver cancer becoming manifest 5 or more years after the last date on which the veteran participated in that activity; and

(C) multiple myeloma or cancer of the bone marrow becoming manifest 5 or more years after the last date on which the veteran participated in that activity.

These presumptions would also apply in the case of wartime and peacetime death compensation.

Section 3 of this measure would amend the Veterans Dioxin and Radiation Exposure Compensation Standards Act as set forth in 38, U.S.C. 354. The amendment

would consist of a new section 10 which would relate to the treatment of radiation dose estimates. The section would provide that for the purpose of adjudicating a claim for compensation or DIC, submitted by an Atomic Veteran or a survivor of that veteran, on the basis of exposure to ionizing radiation, the Veterans Administration shall deem the radiation dose estimate transmitted in the case by the Defense Nuclear Agency or any other appropriate office of the Department of Defense to be two times the estimated dose.

S. 1002 would establish a compensation program independent of title 38 for death and disability attributed to radiation exposure. Compensation and dependency and indemnity compensation payments would be made at two rates - a full rate for thyroid cancer and leukemia; and 50 percent of the title 38 rates for colon cancer, small intestine cancer stomach cancer, liver cancer when cirrhosis or hepatitis B is not indicated, bile duct cancer, gallbladder cancer, pancreatic cancer, lymphomas - excluding Hodgkin's Disease - and multiple myeloma.

The VA would be required to give special consideration to the adjudication of claims for benefits based on diseases having a weak association with radiation, or which have a strong association with other risk factors or have both associations. The diseases listed are lung cancer, esophageal cancer, rectal cancer, pharynx cancer, liver cancer when cirrhosis or hepatitis B is indicated, kidney cancer, urinary tract cancer, bladder cancer, brain and nervous system cancer, salivary glands cancer, bone and joint cancer, and cutaneous melanoma. Special consideration would include the VA giving conclusive weight to the findings provided in the bill relating to the relationship between the disease for which benefits are claimed and ionizing radiation exposure in the process of evaluating the claim in the context of the veteran's exposure.

This measure would also require that the DNA radiation exposure estimates be adjusted upward according to a specified methodology that is set forth in the bill.

S. 1002 would also require that the reports of the Veterans' Advisory Committee on Environmental Hazards, which are required under section 6(d)(3) of Public Law 98-542 to be sent to the Administrator of Veterans Affairs, concurrently be sent to the Senate and House Veterans Affairs Committees.

The provisions of the bill relating to radiation exposure would terminate on September 30, 1990, approximately 1 year after the estimated completion date of a radiation mortality study being conducted under the mandate of PL 98-160, with respect to claims filed after that date.

Finally, the entitlement to VA health care for ionizing radiation exposed veterans provided in section 610(a)(1)(G) of title 38 would be extended to September 30, 1990.

Mr. Chairman, the authors of each of the three bills deserve to be recognized for their efforts to improve the disability compensation and DIC programs with respect to radiation exposure claims. Although each of the measures are different, they all contain a number of well-reasoned provisions.

Rather than address each section of each bill, we would like to set forth a proposal based primarily upon provisions taken from H.R. 1811, S. 453, and S. 1002, but with a few added modifications. It is a proposal that The American Legion feels is fair and equitable , and one that would go a long way in providing benefits to this deserving group of veterans at long last. However, before we explain this idea, we would first like to discuss and in some cases reiterate a number of concerns of The American Legion with respect to radiation exposure.

Let us start with the fact that as we stated earlier, veterans who were exposed to ionizing radiation while serving in the U.S. Armed Forces continue to find it exceedingly difficult, if not impossible, to receive favorable determinations on their disability compensation claims from the Veterans Administration.

In October 1984, PL 98-542, the "Veterans' Dioxin and Radiation Exposure Compensation Standards Act" was enacted. The stated purpose of this law was to ensure that Veterans Administration disability compensation is provided to veterans who were exposed during service in the Armed Forces in the Republic of Vietnam to a herbicide containing dioxin, or to ionizing radiation in connection with atmospheric nuclear tests or in connection with the American occupation of Hiroshima or Nagcsaki, Japan, for all disabilities arising after such service that are connected, based on sound scientific and medical evidence, to such service (and that Veterans Administration dependency and

indemnity compensation is provided to survivors of such veterans for all deaths resulting from such disabilities).

Although this law did not address nearly all of the concerns that have been set forth by The American Legion over the past several years with respect to radiation and dioxin exposure, it was felt to be at least a step in the right direction and we anxiously awaited the publication by VA of rules to implement the Act. The final regulations were published in the Federal Register on August 26, 1985. The American Legion was not in agreement with a number of the rules, and addressed each of its concerns, in detail, in written comments that were submitted to the Veterans Administration during the public comment period. However, a number of the final regulations continue to be of concern to us.

The first concern that we feel bears mention at this time pertains to the rules that, as provided under section 5 of the law, are to specify whether, and if so under what circumstances, certain diseases are to be recognized as connected to a veteran's exposure to radiation. According PL 98-542, the diseases for which rules must be issued are leukemias, polycythemia vera, and malignancies of the thyroid, female breast, lung, bone, liver and skin.

The Veterans Administration has determined that polycythemia vera is not a radiogenic disease for the purpose of this law. This arbitrary decision was based on an assumption that sound scientific and medical evidence does not establish a connection between polycythemia vera and radiation exposure.

Amazingly, in attempting to justify this decision, the scientific study cited (Polycythemia Vera Among Participants of a Nuclear Weapons Test, Glyn G. Caldwell, MD, et al., JAMA, Vol 252, pp. 662-664 (1984)), found a significantly greater than expected occurrence of polycythemia vera among 3,217 nuclear test participants present at the "Smoky" atmospheric nuclear test. The VA states, "However, the lack of supporting documentation suggests the apparent excess of polycythemia vera cases may have resulted from chance or misdiagnosis."

In reviewing the results of this study we find that only 0.2 cases would be expected in a population of this size, yet 4 were observed. Although these findings are statistically significant, VA has chosen not to accept them, has attempted to explain them away, and has not cited any evidence that shows that polycythemia vera is not caused by radiation exposure. To The American Legion, decisions made by VA in this manner with respect to what conditions service connection based on radiation exposure may be established are not acceptable.

A new regulation under 38, CFR, 3.311(b), sets forth the rules for claims based on ionizing radiation, including those pertaining to requests for dose information. As a result of these regulations, the Veterans Administration has notified the Defense Nuclear Agency that any case not involving one of the 15 diseases listed in the regulations, as determined by VA to be a "radiogenic disease", is considered closed. VA has notified the Defense Nuclear Agency of this decision. Thus, DNA has instructed the Nuclear Test Personnel Review teams of the various branches of the Armed Forces to return all requests for dose reconstruction for illnesses other than the 15 to the VA regional office that submitted the request, along with a copy of the Federal Register entry and a statement that according to VA rules, the case is not considered radiation related. The NTPR teams have been instructed not to calculate or reconstruct radiation exposures for VA on "non-radiogenic illnesses."

The rule is considered to be retroactive, and VA has notified DNA that all previous claims not involving radiogenic illnesses are considered closed.

In addition, the regulations establish a 30 year presumptive period for leukemia and bone cancer. The NTPR teams have been instructed to provide dose information only on those cases where these two diseases became manifest within 30 years of the veteran's participation in a nuclear weapons test, in accordance with the VA regulations. Fortunately we understand that some NTPR teams continue to act on all claims.

However, it appears to us that this blatant refusal on the part of the VA to fully develop claims that do not meet criteria that was established by that agency, is a denial of the claimant's due process, and that these particular regulations should be amended to state that dose information shall be provided in any case where there is a diagnosed disease or disability.

Quite frankly, we cannot see how PL 98-542, or the regulations relating thereto, have been much, if any, help to the Atomic Veterans.

Mr. Chairman, one of the most frequent problems that we encounter in representing veterans with their radiation exposure claims is the amount of exposure that must be demonstrated before VA will allow a claim. There is a wide difference of opinion among the scientific community as to how much radiation is dangerous. However, the Veterans Administration is holding fast to the theory that any exposure under 5 REM is not harmful.

This problem is compounded by the fact that actual exposure measurements do not exist for the majority of veterans who were involved in atomic weapons testing. Because of missing data including film badges in many instances, the Defense Nuclear Agency established the Nuclear Test Personnel Review (NTPR) program in each military service to conduct research in order to retrieve data necessary to reconstruct dose levels for individual veterans. We are most familiar with the work accomplished by the Army NTPR program, and appreciate the tremendous amount of time and effort that have gone into their development of test histories and dose reconstruction.

However, in many instances the dose reconstruction is based on methodology and assumptions because film badges are scarce to non-existent.

Film badging was originally the responsibility of The Atomic Energy Commission and the Armed Forces Special Weapons Program. However, in 1953 the Army assumed this responsibility and began issuing and processing the film badges for Army participants in the Desert Rock exercises.

During the first shot of the 1953 test series at the Nevada Test Site every participant was issued a badge. However, this was felt to be excessive, so badging was subsequently done by platoon, with the platoon leader receiving a film badge, and each member of that platoon being assigned the dose level received by the platoon leader. Following each exercise the badges were collected, read by a processing facility, and rosters were prepared, assigning, by platoon, a dose level to each participant. The rosters were then submitted to the Camp Desert Rock surgeon to determine whether or not any of the participants were overexposed.

Although five copies of each roster were made, all copies for every shot tested in 1953 and 1955 have somehow disappeared. An extensive search has been conducted during the past seven years, but the NTPR community has not been able to locate the rosters. Without them, a difficulty exists in placing the Army support troops at Camp Desert Rock during a specific shot, based on dates of assignment to the Nevada Test Site. Through the use of morning reports it may be determined whether a veteran was located at Desert Rock for the full period in which testing was being accomplished, or for a partial period. However, it is impossible to determine how many or what specific tests each veteran participated in, thus an estimated dose level, which may or may not be correct, must be assigned to each participant.

The American Legion has, for several years, repeatedly stated that much needs to be done in the way of research, particularly follow-up studies, on the issue of radiation exposure and its effects on veterans. We have stated that very little meaningful research has been accomplished to date, and the studies that have been completed almost all include a disclaimer that although there is a statistically significant finding, there is no proof that the increased incident of the particular disease or diseases is related to radiation exposure.

During the 98th Congress, The American Legion strongly supported legislation calling for an epidemiological study of the long-term health effects of ionizing radiation on those veterans exposed to it while on active duty. However, after the law was enacted mandating such a study, it was determined that it is not scientifically feasible to design a morbidity study of that nature.

It has become clear to us that little or nothing in the way of scientific research will be accomplished in time to be of any assistance to the Atomic Veterans, or their dependents and survivors.

Therefore, based on all that is set forth above, The American Legion feels that it is appropriate to request the Congress, through this Subcommittee, to consider the following proposal.

(A) Section 312 of title 38 should be amended to establish that the following conditions, in the absence of demonstrable intercurrent disease or injury, shall be considered to have been incurred in or aggravated by the veterans exposure to radiation while on active military duty for the purposes of disability compensation and DIC:

(1) All forms of leukemia, except chronic lymphatic leukemia, becoming manifest within 30 years of the last date of exposure.

(2) Polycythemia vera becoming manifest within 30 years of the last date of exposure.

(3) Thyroid cancer, female breast cancer, lung cancer, liver cancer, cancer of the bone marrow, skin cancer, esophageal cancer, stomach cancer, colon cancer, pancreatic cancer, kidney cancer, urinary bladder cancer, salivary gland cancer, and multiple myeloma that become manifest 5 years or more after exposure.

(B) For the purpose of this proposal, radiation exposure must have taken place during the period 1945-1962 as a result of the atmospheric detonation of a nuclear device; or the American occupation of Hiroshima and Nagasaki, Japan, prior to July 1, 1946.

(C) For the purpose of adjudicating a claim for benefits under chapter 11 or 13 of title 38, the Veterans Administration shall presume the veteran to have received radiation exposure in a dose sufficient to result in one or more of the above-listed radiogenic diseases if the Defense Nuclear Agency determines that the veteran was present at the site of an atmospheric nuclear weapons test; or participated in the occupation of Hiroshima or Nagasaki.

(D) The Veterans Administration shall provide medical care authorized under PL 97-72, to any honorably discharged veteran who was exposed to ionizing radiation during active military service, and who has incurred a disability or disabilities other than those diagnosed as a congenital or developmental abnormality, or an acute condition that is obviously not related to radiation exposure.

(E) The reports of the Veterans' Advisory Committee on Environmental Hazards which are required under section 6(d)(3) of Public Law 98-542 to be submitted to the Administrator of Veterans Affairs are to concurrently be sent to the Senate and House Veterans Affairs Committees.

Mr. Chairman, there are, no doubt, those who will call this proposal irresponsible. However, so far as The American Legion is concerned, the United States Government has been neither responsible nor responsive to the Atomic veterans.

It has been known for over 40 years that exposure to ionizing radiation is dangerous to human health.

For the past 10 years, at least, veterans have been attempting to prove that the cancers and other diseases that they have incurred were caused by their exposure to radiation while on active duty. However, it is reported that the Veterans Administration has allowed only 25 of more than 6,000 radiation claims that have been filed during that time.

In addition to that, a previously existing legal recourse, which allowed Atomic Veterans to sue for damages resulting from inadequate precautionary measures and other alleged negligence on the part of federal contractors while conducting nuclear weapons tests was nullified by an amendment to the FY 1985 Defense Authorization Act - PL 98-525. Despite a number of hearings at which The American Legion strongly supported legislation to restore these rights, it appears that any action is on hold.

Mr. Chairman, there is clearly a need for action to be taken, and The American Legion urges the Subcommittee to study the proposal that we have set forth, keeping in mind the plight of the veterans involved, the frustrations they have faced in attempting to secure benefits, and the fact that it looks as if nothing in the way of meaningful scientific research will be completed during the lifetime of most of the Atomic veterans.

Mr. Chairman, that concludes our statement.

Testimony on Behalf of
The National Association of Atomic Veterans

Presented to the

Subcommittee on Compensation,
Pension and Insurance

of the

House Committee
On Veterans Affairs

The United States
House of Representatives

May 20, 1987

Submitted by

Robert S. Faron, Esq.
Barnett & Alagia

76-912 O - 87 - 7

Mr. Chairman, my name is Robert S. Faron. I am a member of the Board of Directors of the National Association of Atomic Veterans.

I am here to testify on H.R. 1811, S.453 and S.1002, bills which would, in different ways, establish presumptions of service connection or provide for special consideration in adjudicating claims for compensation and disability relating to certain diseases suffered by veterans who were exposed to ionizing radiation during the American occupation of Hiroshima and Nagasaki during the concluding months of World War Two and during atmospheric testing of nuclear weapons.

The National Association of Atomic Veterans is extremely pleased over the introduction of H.R. 1811 and the hearings which are being held today with regard to these bills. We are thankful that after 40 years the Congress has recognized the problem facing those American citizens who were exposed to the unhealthy effects of radiation and who have suffered, without recognition, without medical care, and without disability and compensation benefits to which they would otherwise have been entitled had they been wounded, injured or maimed in combat and suffered traumatic injury or had symptoms of their exposure appeared during or shortly after their service careers.

The essential element of these bills is that by their passage, the country will recognize a service connection to the injuries of these Americans based on <u>exposure</u> to radiation. H.R. 1811 and S. 453 in particular would establish by presumption a service connection to the exposure of these heroic Americans to radiation at the test sites and during the American occupation of Hiroshima and Nagasaki. These bills bypass the position which has previously led to stalemate in addressing these extremely important issues, since they avoid an attempt to place upon the atomic veteran the burden of proving legal causation of his injury based on the scanty evidence of exposure available, and

the uncertain scientific understanding of causation which exists today. This is a task which no lawyer would relish and indeed would be able to accomplish in a court of law. Instead of litigation, these bills offer an opportunity to the veteran to utilize the resources of the Veterans Administration in seeking relief based upon generally understood presumptions concerning the relationship of exposure to radiation and resulting diseases, but without the enormous burden of establishing legal proof. It is just such a burden which has made litigation of these issues a dead end for all atomic veterans to date.

The General Accounting Office (GAO), based on a two-year study of radiation exposure and radiation safety measures during Operation Crossroads in the 1946 nuclear weapons test series in the Pacific, has found that estimates of radiation exposure prepared by the Defense Nuclear Agency (DNA) for that operation may have significantly understated the actual ionizing radiation exposure received by participants in Operation Crossroads. But when these veterans have attempted heretofore to utilize the services of the Veterans Administration based upon these radiation exposure estimates, the VA, in evaluating claims, generally has denied claims made by veterans or veterans' survivors for compensation in connection with their radiation exposure. The present process for ajudicating radiation exposure claims that has been based upon radiation exposure estimates has not resulted in the fair ajudication of these claims. According to the GAO, such claims, particularly those involving health effects with long latency periods, have resulted in award of benefits to only 25 of more than 6,000 claims for compensation or dependency and indemnity compensation filed by veterans and their survivors for disabilities claimed to have resulted from radiation exposure. This experience record certainly agrees with the experience of our members, who have found that the burden of proving causation linked to the service activity has been too great a barrier to overcome. The precise correlation between specific doses of ionizing radiation, particularly at low levels, and the

probability of cancer induction in a particular body organ or tissue in a given individual, is not known at this time. What is known is that certain body organs and tissues, not otherwise susceptible as to other risk factors, have shown a high susceptibility to induction of cancers from ionizing radiation.

It is for just such a reason that it is important that this Congress pass a bill like H.R. 1811 in some form. It is important to recognize that the elements of (1) basing service connection on exposure (2) presuming the causal effect of exposure, and (3) shifting the burden of proving negative causation to the government, are important elements in establishing a compassionate response to the needs of these American soldiers and their dependents who served their country in a manner which put their lives on the line twice: once during the time of the atomic operations and thereafter in the constant deterioration of their health based upon effects suffered from exposure during their service period.

Also it is important that H.R. 1811 establishes a mechanism to provide atomic veterans a response without having to point blame at any particular entity. These soldiers are simply being awarded their due benefits.

Each of these Americans involved in the occupation of Hiroshima and Nagasaki or in the atomic testing of our nuclear weapons system responded to the call of duty based upon their training as military personnel and their patriotic response to their duty to serve their country. We contend that they entered into an implied social contract, upon their enlistment, that they would be treated as any other servicemen who suffered injury during their service period. These American soldiers responded, based on a faith and trust in their country and with the knowledge and understanding that should they be injured, the system of veterans' care established for this country's veterans would be

available to them as it would to all veterans of the Armed Forces of the United States.

It is the purpose of this legislation to make available those benefits to these atomic soldiers. We have supported the efforts of our good friends, Representatives Rowland, Hammerschmidt, Montgomery, Solomon, Applegate and McEwen who introduced H.R. 1811. Similarly, we have supported S. 453 when it was introduced in February by Senators Murkowski, Domenici, Warner and Dixon, and immediately focused the debate on the need to recognize the contribution of the atomic veteran and avoid breaching America's social contract with its servicemen. We are also pleased that the debate has been heightened by the introduction of a third measure, S. 1002, introduced by the Chairman of the Senate Veterans Affairs Committee, Senators Cranston, Matsunaga, DeConcini, Mitchell, Rockefeller, Pell and our good friend Senator Simon. Through their introduction of and sponsorship of these bills, the Senators and Congressmen who have supported our efforts have earned our respect and our gratitude. We are indeed pleased to see this outpouring of response in both houses and from members of both political persuasions who are concerned enough to address this problem.

We would be delighted to see any one bill voted out. It is clear that, realistically, the House Bill, H.R. 1811 and the Senate version, S. 453, could quickly be reconciled in conference. Both H.R. 1811 and S. 453 could be meshed in some form with some of the principles of S. 1002. We leave the task of reconciling the details of these bills to those members and their able staffs who have studied this issue long and with great diligence and compassion.

Of course, we do have some concern with elements of the bills that we see not accomplishing our ultimate goal of fair compensation to all atomic veterans who have developed injury. For example, we urge that certain additional cancers (kidney,

urinary-bladder, thyroid and pancreas) be added to the recognized diseases. Moreover, we would prefer that each of the bills which sets a 30 year time frame for the manifestation of the radiological diseases cited, both clarify the meaning of this term and extend the period to 40 years or even to an unlimited period for the emergence of the symptoms of radiological disease; so as not to split off a vast group of atomic veterans who were exposed during the occupation of Hiroshima and Nagasaki or during the earliest atomic tests from eligibility for the benefits of this bill. This step may be necessary to deal with the factors such as missing records, secret classifications, misdiagnosed cases, and neglect which previously precluded atomic veterans from perfecting claims and which has lead to the stalemate that long delayed this worthwhile legislation. An actuarial time clock is ticking for these older atomic veterans of World War II who will not be able to benefit from the results of this bill if its spirit is not carried out in its implementation. Nor do we see the need to terminate the hard fought benefits of this bill three years after passage of a bill, since the program may take that long to become established.

However, unlike other witnesses who may have appeared before this Committee at some point in time, NAAV is not attempting to win a settlement of this complicated problem in a single spectacular agreement. Nor do we believe that resort to the courts is a desirable or profitable way to provide an effective alternative to compensation through the Veterans Administration system. While some see vindication of their rights through the legal process to be a "right," we see this approach as leading to a long and difficult road to overcome numerous barriers for an uncertain result. We believe it is more in keeping with the unstated contract implied by the acceptance of a citizen of this country into the Armed Forces to have available those resources for veterans' care granted to members of the service. We do not seek to lay blame or liability on anyone. The issues leading to assessment of appropriate liability are too difficult for us or

anyone to resolve, and to make such an effort would only result in being turned from our primary goal of providing compensation and disability benefits to the atomic veterans and their dependents.

We are anxious to support those in the House and the Senate who are genuinely trying to break a stalemate which has gone on for more than a generation. As our good friend Senator Simon noted in his introductory statement, "we must start some place. And we must lay aside some individual interests in order to provide the maximum compensation for the greatest number of people at this time." These worthy men are concentrating on the attainable rather than the ultimate in hoping to build confidence in the process. In that regard, it would be appropriate in this legislation to leave open the possibility that the Veterans Administration may be able to determine over the course of time whether any particular disease or cancer should be linked to exposure to radiation. We urge this approach to be included in any final legislation.

We are also pleased with the dialogue which is beginning to result. These bills and the interest of the members of this Committee, including the Chairman and ranking Republicans of the Subcommittee and of the Full Committee, have joined willingly in the search for answers. We are aware that H.R. 1811 and S. 453 have received indications of support from other veterans' organizations. These include the Disabled American Veterans, the Veterans of Foreign Wars, the American Legion, the Paralyzed Veterans of America and Am Vets. We welcome their contribution to the dialogue. We have also been encouraged by the sense of understanding and cooperation that has been generated between NAAV and the Defense Nuclear Agency. This sense has been largely the result of a dialogue between our Chairman, Boley H. Caldwell, III and Lt. Gen. John L. Pickett, Director of the DNA. This has been memorialized in a letter to Mr. Caldwell from General Pickett which I have attached as an exhibit to my statement.

The National Association of Atomic Veterans in recent years has aired its differences over public policy toward the exposure to atomic ionizing radiation endured by thousands of its citizen-soldiers during the Cold War. But, Mr. Chairman, we have tried to conduct an open and courteous public dialogue while taking care of our responsibilities to our own sick and disabled members who cannot appear here on their own behalf.

I would, however, like to take a brief moment in closing to relate a personal experience which I think is typical of atomic veterans and their families. I beg your indulgence in advance.

A decade ago my father was a vigorous athletic man -- easily used to walking 18 to 36 holes of golf in a weekend. Within six years he shed 40 pounds. Now frail and diseased, he is unable to walk his toddling grandson up and down the block without great effort. This condition is due to his inability to maintain normally produced red blood cells in his blood system, and thus retain or transfer oxygen in his body. My father's symptoms have been diagnosed as myleo prolific anemia. He was so ill that he had to have transfusions weekly or biweekly. Recently his spleen was removed. It was 12 times the size of a normal human spleen. We have no history of congenital defects of this sort in our family. Dad has recently undergone a recovery and his doctor may have stabilized his condition with large doses of medicine. We will always be uncertain what caused this condition. Nevertheless, we would wonder about whether the two flights near or through the atomic cloud and the various crew duties, including cleaning exposed aircraft, three months living on the Gilbert and Marshall Islands during the height of testing, and a four- to five-day flight home in the very aircraft that was used in testing exposure to the atomic radiation at the Sandstone tests, may not have left Dad with a legacy of pain in exchange for his patriotism and devotion to duty.

My father volunteered to serve, as did I and the other members of the Atomic Veterans. But if the United States fails to keep its implied social contract with its veterans such as my Dad and other Atomic Veterans, perhaps my children and yours will say "No, why should we dedicate ourselves to a country which will not take care of its own?" We as a nation will reap what we sow. This country must ensure that an American who goes forth in military service and who returns to that nation as an injured individual, whether the injury is traumatic or latent, receives adequate care. To do less is to denegrate the values upon which this nation was built and to rend the social fabric of this nation for generations to come.

Mr. Chairman, we are extremely pleased with the introduction of this bill and we hope that you will work toward its speedy passage. For the first time since the invention of the atomic bomb, the representatives of all parties and interests are talking. Whatever proposal is arrived at as a result of this hearing and that in the Senate, the National Association of Atomic Veterans is proud of the leadership majority and ranking members of both the House and Senate Veterans Affairs Committee and the other members who have joined in your efforts and the efforts of others to sponsor or cosponsor this legislation.

Defense Nuclear Agency
Washington, D.C. 20305-1000

4 May 1987

Mr. Boley H. Caldwell III
National Association of Atomic Veterans
2310 Apollo Way
Mesquite, Texas 75150

Dear Boley:

As you have learned, I will be retiring from active duty the first of June and joining you in the civilian world. I have not established any firm plans beyond remaining initially in the Washington area while Mary and I consider what options we may have for the next phase of our life.

My purpose in writing this brief letter is to express my appreciation for the way you have offered your hand to me in cooperation. I understand the enormous sense of distrust and injustice that many of the members of NAAV regard DNA. I personally and professionally regret that personalities before we met reacted in such a way to engender such deep emotions. I am not sure that your effort and mine have made life better for any of the veterans, but I have pride in the fact that you and I have tried and been somewhat successful in creating a sense of understanding and cooperation between our two organizations because I believe that, through cooperation, we may be able to help deserving veterans. Frankly, I think you deserve the credit for any success that's been achieved since I am sure that many in NAAV have questioned your motivation and integrity when you became associated with DNA in a non-hostile relationship. I assure you that I will do anything I can to encourage my successor to pursue the same spirit of cooperation that you and I have tried to create. Hopefully, in time, by working together, NAAV and DNA will be able to do the right thing for our atomic veterans.

Boley, I appreciate your understanding, fairness in hearing and considering my responsibilities as well as your own. If there is anything I can do to be of assistance in the future, please let me know.

Warmest regards.

Sincerely,

John

JOHN L. PICKITT
Lieutenant General, USAF
Director

STATEMENT OF
JOHN F. HEILMAN
NATIONAL LEGISLATIVE DIRECTOR
DISABLED AMERICAN VETERANS
BEFORE THE
SUBCOMMITTEE ON COMPENSATION,
PENSION AND INSURANCE
OF THE
HOUSE COMMITTEE ON VETERANS AFFAIRS
May 20, 1987

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

On behalf of the over 1.1 million members of the Disabled American Veterans and its Ladies' Auxiliary, may I say that we are indeed pleased to appear here today in discussion of legislation relating to the Veterans Administration's service-connected benefit entitlements of the so-called "Atomic Veteran" -- those veterans exposed to ionizing radiation as a result of participation in the testing of above ground nuclear devices and/or as a result of serving in the immediate, post World War II occupational forces in Hiroshima/Nagasaki Japan.

At the outset, Chairman Applegate, I do want to thank you, Ranking Minority Member McEwen and all members of the Subcommittee for your decision to give consideration to today's subject legislation. In addition, and though they are not members of this Subcommittee, I want to publicly acknowledge the past and present contribution of Representatives Rowland (of Georgia) and Hammerschmidt. The leadership roles they have assumed in advancing the interests of atomic veterans have, in large part, been responsible for the continued Congressional focus that has been manifested on this most important issue.

Mr. Chairman, the path traveled by atomic veterans in their attempt to establish entitlement to VA benefits and services -- particularly service-connected disability and death compensation benefits -- has been long and arduous, fraught with complexity

and emotion. Indeed, at least in the initial stages of the controversy, there was a reluctance on the part of many to even acknowledge existence of this particular "class" of veterans. Doubts were expressed in many quarters concerning the legitimacy of the group and its claims that they had been placed in a unique and precarious situation during their military service.

However, over the years, through the dogged persistence on the part of atomic veterans themselves and buttressed by expanding knowledge and insight concerning the effects of radiation upon human tissue and the actual circumstances of exposure experienced, these doubts, these reservations have been pushed aside.

The bone of contention facing us today -- given the accepted legitimacy of atomic veterans and the obligation of our government to receive their claims -- is the answer to the question of just how do we address the issue?

Setting aside the existing VA claims process for the moment, several options have been and continue to be examined -- witness the ongoing NARS vs. TURNAGE litigation, legislation advocating the repeal or modification of the "Warner Amendment" and proposals to allow atomic veterans, along with all other VA claimants, to pursue VA benefit denials in the Federal District Court System.

It is our considered opinion these avenues of redress beg one salient factor: given the inability of the scientific community to state with any degree of certainty that low level exposure to ionizing radiation will lead to the development of any subsequent condition, combined with the absence of accurate, reliable information relating to exposure levels actually experienced, atomic veterans cannot, within existing law and regulation, definitively prove a cause and effect relationship.

The right to hire an attorney, the right to sue the government or the private contractors involved in the development and testing of nuclear devices offers, at best, a time consuming, expensive and, very likely, inconclusive avenue of redress...one that ultimately may never place meaningful compensation into the hands of atomic veterans and their survivors.

Of course, Mr. Chairman, this same "causation dilemma" applies to the present VA adjudication process.

For years, including the interval since the enactment of Public Law 98-542 which saw the recognition of 15 radiogenic conditions and initiation of regulatory procedures to handle ionizing radiation claims, atomic veterans have been frustrated in their pursuit of service-connected entitlements. Only a handful of claims (25) of the six thousand plus filed have been allowed.

But, the reason for this lies not with the quality of representation provided to VA claimants or the quality of VA Rating Board decisions, but simply because current law and regulation, which has its genesis in the Congress, requires definitive scientific proof of causation.

Atomic veterans, who were intentionally exposed to the dangerous effects of radiation in the infancy of the nuclear age under circumstances and conditions that would not be tolerated today, thus find themselves in a stalemated position, vis-a-vis their benefit entitlement. They have waited, patiently, for some 30 to 40 years and it is time to act in a fashion proposed by the pending legislation.

S. 453, H.R. 1811 and S. 1002

Mr. Chairman, the bills subject to today's hearings, S. 453, H.R. 1811 and S. 1002, collectively carry the sponsoring signatures of yourself and Mr. McEwen, the Chairmen and Ranking

Minority Members of both the House and Senate Veterans Affairs Committees and other members of Congress, including such distinguished gentlemen as Representative Rowland (of Georgia), Representative Hammerschmidt and Senator Simon, all of whom have been notable advocates for atomic veterans.

Though all bills differ, in varying degrees, from one another, they have in common a basic, fundamental approach that would, through appropriate amendment of Title 38, U. S. Code, place monetary entitlement immediately into the hands of atomic veterans (and their survivors) who have developed or succumbed from certain cancerous conditions held to be related to exposure to low levels of ionizing radiation.

S. 453, for example, would amend Section 312, Title 38, U. S. Code, to provide a presumption of service-connection -- and therefore entitlement to VA service-connected disability and death compensation benefits -- to atomic veterans (and their survivors) who have developed, within specifically stated time frames, the conditions of:

* Leukemia (excepting chronic lymphatic leukemia),
* Liver cancer,
* Multiple myeloma, and
* Cancer of the bone marrow.

H. R. 1811 would similarly amend Section 312, providing service-connected disability and death compensation entitlement relative to the conditions of:

* Leukemia (excepting chronic lymphatic leukemia),
* Polycythemia vera,
* Thyroid cancer,
* Bronchiogenic carcinoma, and
* Female breast cancer.

S. 1002 utilizing a different approach, would add a new chapter (14) to Title 38, U. S. C., authorizing benefits equal to the rates of service-connected disability and death compensation payments under Chapters 11 and 13, Title 38, U. S. C., for the conditions of:

* Leukemia, and
* Thyroid cancer.

In addition, and unlike the two previous bills, S. 1002 would also provide benefit payments at fifty percentum of the rates authorized in Chapters 11 and 13, Title 38, U. S. C., for the conditions of:

* Cancer of the colon,
* Cancer of the small intestine,
* Cancer of the stomach,
* Cancer of the liver (except where cirrhosis or hepatitis B is indicated),
* Cancer of the bile duct,
* Cancer of the gall bladder,
* Cancer of the pancreas,
* Lymphomas (excluding Hodgkins disease), and
* Multiple myeloma.

The bills S. 453 and S. 1002 (but not H.R. 1811) also contain provisions which would provide special consideration for the adjudication of claims of atomic veterans who have certain other radiogenic or suspected radiogenic conditions, such special consideration taking into account the unreliability and inaccuracy of Defense Nuclear Agency (DNA) radiation dose estimates and/or the augmentation of DNA dose estimates.

A final difference of note regarding the benefit entitlements proposed by the pending legislation is that, unlike S. 453 and H.R. 1811, applications for the payments authorized by S. 1002 could no longer be received after September 30, 1990 (one year after the estimated completion of the radiation mortality study mandated by Public Law 98-160).

Mr. Chairman, the above cited differences obviously must be reconciled before any measure can clear the Congress for Presidential signature. In terms of priority, as we view them, they range from determining just which radiogenic conditions should be recognized for payments and the length of manifestation periods involved, to the more technical decision of where and how to make the necessary modification in Title 38, U. S. C.

And though some of these differences are substantial and, aside from other factors, will be influenced by the finite amount of federal dollars available, we in the DAV do not find them to be insurmountable. We are confident that this Subcommittee, the Full Committee and your counterparts in the Senate -- the Chairman and Ranking Minority Members of whom have all committed themselves to addressing the needs of atomic veterans -- will be able to reach agreement. Though such agreement will most likely not satisfy all interested parties, I am sure that all will appreciate that a fundamental, indeed, an historic first step will have been taken on behalf of atomic veterans and their families.

I can categorically state that the DAV holds to this view.

We have long recognized, through the experiences encountered by our National Service Officers in representing radiation claimants before the VA, that, absent a breakthrough translating suspicion of causation into one of scientific fact, modification of current law is necessary.

And we have pursued such a modification of law...commencing in 1978 with our participation in hearings conducted by the Subcommittee on Health and Environment of the House Energy and Commerce Committee, and continung through the 1984 Congressional consideration and passage of Public Law 98-542 down to the present time, where our organization finds itself to be under a mandate to secure service-connection for leukemia developing in atomic veterans.

Mr. Chairman, we urge the Subcommittee to act favorably on this legislation. The input and views of the DAV are available to you, as you proceed to mold the proposals contained in the pending bills into a measure acceptable to the entire Congress.

In closing, I again want to thank you for extending us the opportunity to appear here today in discussion of this most important issue. I will be pleased to answer any questions you may have.

STATEMENT OF

BOB MORAN, ASSOCIATE LEGISLATIVE DIRECTOR

PARALYZED VETERANS OF AMERICA

BEFORE THE

SUBCOMMITTEE ON COMPENSATION, PENSION AND INSURANCE

OF THE

HOUSE COMMITTEE ON VETERANS' AFFAIRS

CONCERNING

IONIZING RADIATION LEGISLATION

MAY 20, 1987

Mr. Chairman and Members of the Subcommittee, on behalf of the members of Paralyzed Veterans of America (PVA), I would like to take this opportunity to thank you and the Members for holding this most important hearing, and in allowing PVA the opportunity to present our views and concerns regarding the various legislation being examined here today. I am Bob Moran, Associate Legislative Director with PVA.

Mr. Chairman, the three bills being addressed here today, H.R. 1811, S. 453, and S. 1002, would establish presumptions of service connection, or provide for special consideration in adjudicating claims, relating to certain specified diseases suffered by veterans who have been exposed to ionizing radiation during the American occupation of Hiroshima and Nagasaki during World War II and during atmospheric testing of nuclear weapons.

As you know, Mr. Chairman, it is estimated that approximately 250,000 servicemen and women, from the mid-1940's to the early 1960's, were exposed to radiation through either participating in the nuclear weapons testing program, or in the occupation of Hiroshima and Nagasaki, Japan. At that time, concern was expressed regarding the possible dangers involved with nuclear testing, and the Atomic Energy Commission cautioned that troops

involved in the nuclear tests might be exposed to harmful levels of radiation. And, history has demonstrated this has come true.

PVA believes that too much time has elapsed to ever adequately compensate those veterans who were exposed to radiation during these periods and have experienced adverse health effects. But, the legislation being addressed here today and any actions taken hereafter by this Subcommittee, the Full Committee, and Congress, will be a much needed and deserved approach in resolving the substantive problems, the considerable scientific uncertainty surrounding the issue of atomic veterans, and the adjudication of their VA claims for service-connected disabilities.

PVA believes that there is a consensus of opinion as evidenced by the inclusion in all three bills, H.R. 1811, S. 453 and S. 1002, that certain diseases such as leukemia and thyroid cancer (included in two bills and being considered in the third), are the probable result of minimal levels of exposure to ionizing radiation. This is not to say that presumption for these two diseases are conclusive in the consideration for service-connection, but, with the absence of an accurate measurement of radiation exposure and the scientific uncertainty that still surrounds this issue, that these diseases have reasonably been proven to be the probable result of exposure to radiation. Therefore, veterans should be given the benefit of the doubt and claims for VA benefits for these conditions should be granted in favor of the veteran.

PVA applauds the authors of all three bills and supports the intent of the various legislation, and in amending Title 38, United States Code, by adding the provision of presumption of service connection for at least leukemia and thyroid cancer, and possibly other diseases as evidence would warrant. This would address, and begin to recognize the needs of veterans and their families for compensation long overdue by our government, by providing certain VA benefits to this particular group of deserving individuals.

In conclusion, Mr. Chairman and Members of the Subcommittee, PVA supports the intent of the legislation being addressed here today, which would provide certain benefits to these veterans for illnesses attributable to the exposure

to ionizing radiation, and to the survivors of veterans who participated in nuclear testing or in the occupation of Hiroshima or Nagasaki. PVA commends the Subcommittee in addressing this most important and complex issue, and in moving forward to achieve a fair and equitable means of providing for this deserving segment of our veteran population and their families.

Additionally, PVA hopes that the scientific community will continue to aggressively pursue its investigation of the linkage between exposure and possible adverse health effects. Based on such evidence as results from their investigations, we believe this Subcommittee and the Congress can further develop appropriate remedies for veterans who are shown to have suffered, based on reasonable evidence, service-related health conditions.

This concludes my statement, Mr. Chairman, and I again thank you and Members of the Subcommittee for permitting PVA to provide our views, and I would be glad to respond to any questions that you might have.

STATEMENT OF

DENNIS M. CULLINAN, ASSISTANT DIRECTOR
NATIONAL LEGISLATIVE SERVICE
VETERANS OF FOREIGN WARS OF THE UNITED STATES

BEFORE THE

SUBCOMMITTEE ON COMPENSATION, PENSION AND INSURANCE
COMMITTEE ON VETERANS' AFFAIRS
UNITED STATES HOUSE OF REPRESENTATIVES

WITH RESPECT TO

THREE BILLS PERTAINING TO VETERANS RADIATION EXPOSURE

WASHINGTON, D.C. May 20, 1987

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for this opportunity to present the views of the Veterans of Foreign Wars of the United States with respect to H.R. 1811, S. 453, and S. 1002. In general these bills would establish presumptions of service connection, or provide for special consideration in adjudicating claims, for certain diseases suffered by veterans as a consequence of their exposure to ionizing radiation during the American occupation of Hiroshima and Nagasaki during the second World War and during atmospheric testing of nuclear weapons.

In light of the Veterans of Foreign Wars long standing commitment to see the problems of this nation's atomic veterans addressed in a fair and compassionate manner, we are both pleased and gratified with the introduction of these three measures which provide for compensating veterans and the survivors of veterans who are suffering or have died from certain disabilities due to exposure to ionizing radiation during their military service. Although we will address these measures individually, taken as a whole they represent a long overdue step in the right direction toward compensating these heroic Americans, as well as giving evidence of the national concern and compassion which is their due.

The plight of this nation's atomic veterans must first be placed in historical context. It is indeed shocking when one realizes that of the 5,000 claims filed by veterans who participated in the nuclear test and cleanup operation in Japan, only 25 have been granted service connection and are being paid compensation for the diseases they incurred in the service of their nation. This virtual denial of compensation to atomic veterans flies in the face of a recent General Accounting Office (GAO) study that found that nearly 17,000 of the 42,000 U.S. servicemen and civilians who took part in the atomic tests at Bikini Atoll were probably exposed to dangerously high radiation. The GAO study did not attempt to relate exposure to subsequent illnesses but concentrated instead on what it portrays as unreliable monitoring, lack of safety equipment and generally careless procedures by the Navy, Army and other federal agencies involved.

The GAO report also indicates that one of the weakest elements of a Pentagon study to determine the participant's exposure consists of "film badges" that measured only up to two rems of radiation. During the two-week test period at Bikini, the military arbitrarily chose 60 rems as the safe limit of exposure. Accumulative radiation was not measured at all. Five rems are now considered the permissible exposure limit.

Because the badges were unable to register more than two rems, scientists who wrote the Pentagon Report counted a fully exposed badge as only two rems. Then they said that veterans who participated in these tests were exposed to safe levels of radiation. It is patently obvious to us and, for that matter, just about anyone else at all familiar with these tests that the exposure level was considerably higher than two rems. It is also clear to us that if the safety procedures at the Bikini tests, conducted under relatively controlled conditions, were so inadequate, the procedures certainly weren't any better amidst the uncertainty and confusion that reigned at Hiroshima and Nagasaki.

It should be noted also that the GAO report found, too, that most atomic test participants wore little, if any, protective clothing. Decontamination procedures were not worked out until nearly a week after the second explosion during which 34,500 Navy and Army personnel aboard more than 200 ships entered

the Bikini Lagoon. Some entered within hours of the detonation. Furthermore, there was no measurement of the radiation that could have affected personnel who in the following weeks returned to unmanned target ships that had been anchored in the Lagoon during the explosion. Thus, it is obvious to us that the exposure levels of these veterans and other atomic veterans are generally grossly underestimated.

The first bill under consideration today H.R. 1811, "Atomic Veterans Compensation Act of 1987," introduced by Mr. Rowland of this committee along with its Chairman, G. V. "Sonny" Montgomery and the ranking minority member, Gerald Solomon as well as Messrs. Hammerschmidt, Applegate and McEwen, would add additional diseases to the list of presumptive disorders for radiation-exposed veterans as contained in Title 38 which shall be considered to have been incurred in or aggravated by the veteran's participation in a radiation risk activity while on active duty during a period of war, notwithstanding the fact that there is no record or evidence of that disease during the period of service. These diseases are as follows: leukemia, except chronic lymphatic leukemia; polycythemia vera; thyroid cancer; bronchogenic carcinoma; and female breast cancer, all of which must become manifest to a degree of 10 percent or more within 30 years after the last date of a veteran's exposure to radiation while serving in the military. The Veterans of Foreign Wars supports establishing the aforementioned diseases as presumptive disabilities for the purpose of adjudicating claims for VA benefits by this nation's atomic veterans. However, the VFW favors allowing these presumptions to all of this nation's atomic veterans to include those who suffered their radiation exposure while on active duty during peacetime. Furthermore, we would recommend eliminating the 30 year limit by which time a given disease must become manifest. In light of the great scientific uncertainty surrounding the exact nature of these disorders and the precise relation they have with radiation exposure, we believe it would be inappropriate to place a time limit on their manifestion period. We would argue that it is impossible to say with any degrees of certainty whether a given disorder would manifest one day after exposure to radiation or 50 years later. In either event, when a veterans' disability is incidental to his service in the United States military he should not be prevented from receiving VA compensation.

The remaining two measures under consideration today S. 453, "Veterans' Ionizing Radiation Compensation Improvements Act of 1987," introduced by the Ranking Minority member of the Senate Veterans' Affairs Committee, Senator Frank Murkowski, along with Senators Domenici, Warner and Dixon; and S. 1002, "Veterans' Radiation Exposure Disability and Death Benefits Act of 1987," introduced by the Chairman of the Senate Veterans' Affairs Committee, Senator Alan Cranston, together with Senators Simon, Matsunaga, DeConcini, Mitchell, Rockefeller, Graham and Pell are similar in intent so we will address them both collectively and individually. Both of these measures address the two primary reasons that over 99 percent of all claims for Veterans Administration (VA) benefits filed by veterans suffering from radiation related disabilities have been denied. The first reason that these veterans have been virtually shutout of the VA compensation system is that, more often than not, it is virtually impossible to determine absolutely whether a given veteran's disability was caused by his exposure to radiation incident to his service in the Armed Forces. The second reason for this most unfortunate situation is the grossly underestimated radiation exposure level of these veterans by the Defense Nuclear Agency (DNA) that the VA relies on in adjudicating such claims. The two bills under discussion would not only add to the list of presumptive disorders for peacetime and wartime disability and death compensation, but would also amended Title 38 to establish compensatory systems to augment the VA's current procedures for adjudicating these claims so they may be granted without fully meeting the VA's standard for establishing a causal relationship between a service related incident and a resultant disability.

Under S. 453, veterans who were exposed to ionizing radiation as a result of their participation in the atmospheric nuclear testing program or the occupation of Hiroshima and Nagasaki shall be presumed to have a service connected disability if they suffer from or die as a result of all forms of leukemia, except chronic lymphatic leukemia, becoming manifest within 30 years after the last date of a veteran's exposure to radiation; liver cancer becoming manifest five or more years after the last date of such exposure; and multiple myeloma or cancer of the bone marrow also becoming manifest five or more years after a veteran's exposure. The association of these blood related cancers with radiation exposure is very strong and the likihood of their having another cause is only very slight. Thus we strongly support adding these diseases to the VA's list of presumptive disabilities and would only recommend that the 30-year limit for the manifestation of the various forms of leukemia be eliminated. Another provision of S. 453 would require that for

the purpose of adjudicating claims for VA benefits for disabilities or deaths associated with exposure to ionizing radiation, veterans exposure estimates as reported or reconstructed by the DNA would be doubled. Although not a perfect or conclusive answer, this is certainly a step in the right direction toward correcting the often grossly underestimated assessments of individual veteran's exposure to atomic radiation. In our view, requiring the VA to double the dose estimates, as reported by the DNA, is certainly justified and if anything should be viewed only as a rather conservative adjustment. We would point out, however, that this adjustment does not help those for whom there is no known exposure level or who are not able to establish their presence at a given test site. We shall have more to say on this issue when we address S. 1002.

The final bill under consideration today, S. 1002, would establish a new chapter under 38 USC which will establish a separate category or group of presumptive disorders for radiation survivors which would be paid at a rate either equal to that provided in chapter 11 or 13 of Title 38 or at the rate of 50 percent of such compensation. Special consideration would also be given to claims for compensation by a veteran or survivor of a veteran when the veteran develops a disease which has been shown to be somewhat associated with radiation.

The first provision of S. 1002 would provide disability and death payments to radiation-exposed veterans for cancer of the thyroid when manifest five or more years after exposure and leukemia manifest within 30 years after such exposure. These payments would not be regular Title 38 compensation and Dependency and Indemnity Compensation (DIC) payments but would be treated as such for all other purposes. The VFW certainly agrees that these disabilities should be compensated, however, we would prefer that they be treated as regular VA compensation rather than as a separate category. Presumptive disorders are already particular in nature, such as those that exist for former POWs and for veterans who served in jungle campaigns, and we see no reason why radiation-exposed veterans should be held apart.

The bill's second major provision would provide for two categories of disabilities to be paid at two different rates. Cancer of the thyroid manifested five or more years after radiation exposure and leukemia when manifested within 30 years, diseases which are strongly associated with radiation, would be paid at full Title 38 rates. Cancers of the colon; small intestine; stomach; liver, except where cirrhosis or hepatitis B is indicated; bile ducts; gallbadder; pancreas; lymphomas (excluding Hodgkin's disease), and multiple myeloma would be paid at 50 percent of the Title 38 rates since they are designated in S. 1002 as diseases with only a moderate association with radiation. In light of the high degree of scientific uncertainty surrounding this issue together with the enormous suffering endured by our atomic veterans through the years, the VFW is of the opinion that if a given disability is associated with a veteran's service related radiation exposure then that disability should be paid at the full rate of compensation so that justice may be served. A veteran suffering from service-connected cancer of the colon is just as entitled to full compensation as is, say, a veteran suffering from cancer of the thyroid. Once again, we also believe these veterans should receive regular VA compensation and not be held apart in a well intended yet ill advised adjudicative ghetto.

Another major provision of S. 1002 would require the VA to give special consideration to the adjudication of claims for diseases which only have a weak association with radiation exposure. This special consideration would include the VA giving conclusive weight to findings relating to the relationship between the disease and ionizing radiation exposure in the process of evaluating the claim and in the context of the veteran's exposure. Since these diseases, listed in the bill, are various cancers and given the strong body of scientific evidence linking cancer with radiation exposure, the VFW strongly believes any uncertainty with respect to a claim for benefits by a radiation-exposed veteran should be resolved in his or her favor.

The VFW supports the provision in S. 1002 which provides that a radiation-exposed veteran or that veteran's survivor who is receiving benefits at the rate of 50 percent of regular compensation or for special consideration, would retain the alternative of achieving entitlement to full compensation under Title 38. As previously stated, we believe that all service connected disabilities should be paid at the regular rate; but should a 50 percent rate be established, we would certainly favor language allowing a veteran or his survivor to establish entitlement to full compensation.

The next major provision would, using a different method but with a similar intent to the provision contained in S. 453, require that the DNA radiation exposure estimates be adjusted upwards according to a specified

methodology when a radiation-exposed veteran or a survivor thereof applies to the VA for a benefits. This recalculation would be based on the estimated amount of radiation exposure received by members of the veteran's branch of service in the nuclear weapons testing operation in which he participated or the estimated exposure received by participants in all branches of service in that operation whichever is more favorable for the veteran. Basically, if the DNA radiation exposure estimate indicates that 25 percent or more of the participants in a given test were exposed to more than three rems of ionizing radiation than five rems would be added to the veteran claimant's DNA estimated radiation exposure; if the participants were exposed to more than one rem of radiation but less than three rems would be added to a given veteran's estimated radiation exposure; finally, if 25 percent or more of the participants were exposed to an excess of 0.5 rem, then one rem be added to the veteran's DNA exposure estimates. Finally an additional one rem be added to the radiation exposure estimates of those veterans who were exposed to radiation through their participation in the American occupation of Hiroshima and Nagasaki.

Certainly, the VFW favors upwardly adjusting the often severely underestimated DNA exposure estimates of this nation's atomic veterans. As is the case with the equivalent provision S. 453, which would simply double these exposure estimates, it is a completely justified and fairly conservative attempt to establish at least a modicum of compassion and fairness with respect to adjudicating radiation-exposed veteran's claims for VA benefits. One advantage to S. 1002's method is that those veterans with no record of their radiation exposure or who cannot establish their presences at a given site would at least be given the chance to establish their entitlement to a service connected claim for a radiation related disability through the records of their fellow participants. Doubling the DNA exposure estimate, on the other hand, enjoys the advantage of uniformity and simplicity as well as allowing for a more accurate upward adjustment for those veterans whose exposure estimate is moderately high. The VFW would therefore favor coupling these two methodologies, at the very least, allowing whichever of these two means of recalculating exposure that is most in a given veteran's favor to be utilized. This would not, of course, constitute a perfect solution but nonetheless would make a valuable contribution toward redressing a grievous injustice.

The VFW favors the provision which would require the reports of the Veterans Advisory Committee on Environmental Hazards, as required under Public Law 98-542, be sent concurrently to the Senate and House Veterans' Affairs Committees as well as to the Administrator of Veterans' Affairs. With respect to the remaining two provisions to be addressed here today which respectively call for the termination of the provisions as contained in S. 1002 on September 30, 1990, and extend the entitlement to VA health care for ionizing radiation-exposed veterans as provided in section 610(a)(1)(g) of Title 38 USC until September 30, 1990, the VFW does not perceive a need for establishing an expiration date at this time and would argue in favor of indefinite statutory authority in this regard. The need of this nation's atomic veterans along with the injustice they have endured are real, this fact will not change, so we strongly oppose subjecting them to any more suffering or uncertainty by sunsetting their eligibility or access to VA compensation and health care.

Mr. Chairman this concludes my statement and I would once again thank you on behalf of the entire membership of the Veterans of Foreign Wars for conducting this hearing today of such grave consequence to this nation's atomic veterans.

NATIONAL ASSOCIATION OF
RADIATION SURVIVORS

TESTIMONY OF THE NATIONAL ASSOCIATION OF RADIATION SURVIVORS TO THE HOUSE COMMITTEE ON VETERANS AFFAIRS: SUBCOMMITTEE ON COMPENSATION, PENSION, AND INSURANCE

SUBJECT: TESTIMONY ON THREE BILLS TO COMPENSATE ATOMIC VETERANS: H.R. 1811; S.453; S.1002.
TO: CHAIRMAN DOUGLAS APPLEGATE, OF THE HOUSE COMMITTEE ON VETERANS AFFAIRS, SUBCOMMITTEE ON COMPENSATION, PENSION, AND INSURANCE
PRESENTED BY: EDWARD VICTOR FENTON, VICE PRESIDENT AND DIRECTOR OF THE SOUTH CENTRAL REGION

Good Afternoon, Chairman Applegate and members of your committee, and other guests. With me is the Administrative Director of the National Association of Radiation Survivors, Dr. Dorothy Legarreta, who was exposed to ionizing radiation while working in the Manhattan Project. The views I will express here are my personal views, and this testimony does not necessarily reflect the official position of NARS, although it may well do so after it is presented to our membership at our fifth national convention later this summer.

This year, 1987, marks the fifth year NARS, the National Association of Radiation Survivors, has come before either this Subcommittee or the full Committee on Veterans Affairs to present written and/or oral testimony on legislation to compensate veterans alleging damage from their exposure to varying levels of ionizing radiation while present at the atmospheric nuclear weapons tests conducted by our Government from 1945 until mid-1962. As we review our past testimony urging presumptive compensation for veterans suffering from any of the full range of radiogenic (radiation-caused) diseases, we find it continues to be ignored. We must reiterate, as we have each of the past years, that if the Veterans Administration would simply adhere to Title 38, there would be no need for this hearing or any subsequent hearing. But, as before, we find there has been no substantive change in the compensation awarded to atomic veterans or to their surviving widows and children. Rather, the rate of granted claims has plummeted to zero percent for the past year and one half. Overall, of an estimated 6,000 ionizing radiation claims filed, only 22 total have been granted compensation, and five of these received a mere 10% Disability rating for skin cancer or radiation burns. Nearly two years have passed since new regulations for radiogenic diseases were adopted by the Veterans Administration, which added over a dozen additional cancers to the two previously accepted as compensatable. Yet, again, every single claim based on radiation exposure has been denied, excepting, curiously, that of one widow, who is one

NARS Advisory Board
Gordon Eropkin MD
Michael Rinn MD
Ron Bakal MD
Allan Lavish MD
Bruce de Boskey MD
Stuart Udall JD
Leon Gottlieb MD
David Goudy MD
Carl Johnson MD
Susan Lambert MD
Roland Finston PhD
Edward Martell PhD
Marion Moses MD
N. Anthony Greenhouse MA
Donnell Boardman MD
Karl Z. Morgan PhD

of the individual plaintiffs in the NARS versus Turnage lawsuit . We will note that the granting of her claim did not result in any monetary compensation to Marthanne Conner.

Even more disheartening, however, are detailed findings, from sworn testimony in federal court from officials within the Veterans Administration, of an adjudication system for compensation which is riddled with corrupt practices, in contravention of its own regulations. These practices were well-described in testimony presented by Gordon Erspamer, a member of NARS Legal Advisory Board, and lead attorney in the NARS lawsuit, while speaking as an individual, before a joint session of the House and Senate Veterans Affairs Committees on March 17 of this year. He described a pattern of "churning" claims by adjudicators in order to obtain merit pay bonuses for productivity; of denial of legal obligations to provide opportunities for personal hearings; of an illegal internal procedure called the "administrative disallowance" or "record purpose disallowance" based upon spurious VA requests for irrelevant documents; or arbitrary denial of claims without any rationale; and the extraordinary "error" rates in the VA Field Offices, far in excess of acceptable levels, or of those officially reported. These clearly indicate that the adjudication system for VA compensation claims, described as "non-adversarial and in favor of the veteran" is, in fact, a system totally out of control, rampantly unjust to our disabled veterans, and one unable to clean up its own illegal practices. Therefore, whatever this Congress passes as legislation to compensate atomic veterans which is dependent upon the Veterans Administration to implement is doomed to be an exercise in futility.

Our testimony today will first briefly discuss the three bills presently before us, and our reasons for preferring the Cranston-Simon bill, S. 1002, in spite of its serious shortcomings. The balance of our testimony will focus on compensation issues, including the absence of due process in the Veterans Administration adjudication procedures; continued reliance by the Veterans Administration on the false and dishonest "official" dose reconstructions obtained by the Defense Nuclear Agency, and the limited range of illnesses deemed compensatable in the various bills before us today as well as those in the most recent listing of radiogenic illnesses issued by the Veterans Administration. We will also provide an update to this committee on the system Canada is using to compensate its atomic veterans, many of whom served alongside our veterans at the Nevada Test Site, or in the Pacific. We will close by once again describing the plight of our ever-growing cadre of atomic widows, as well as that of children who have been affected genetically by their father's radiation exposure while in service.

Of the three bills before us, two, S. 453 and H.R.1811, although welcomed by NARS as well-intentioned, and exemplifying the proverbial "foot in the door", are so inadequate in terms of the diseases accepted as radiogenic as to be unacceptable. We also, in the case of the Senate bill, wish to note our unease that its co-sponsors, in their presentation of the bill, indicate a lack of support for the repeal of the Warner Amendment, an unconstitutional bill which severely limits the right to redress by atomic veterans. In addition to the paucity of radiogenic diseases listed--far fewer than those the Veterans Administration itself has accepted--there is no help for atomic widows or genetically-affected offspring. Turning to S.1002, we welcome the broad range of radiogenic illnesses accepted, but object strenuously to the three classes of treatment, depending on the cancer site. To quote the Director of our Atomic Widows, Mrs. Jean Ralph, in a letter to Senators Simon and Cranston:

> Harold J. Ralph, U.S. Marine, my husband, who was with the Hiroshima/ Nagasaki occupation forces and in the Nagasaki radiation for nine months, died on August 18, 1978, a multiple myeloma victim. Multiple myeloma is a bone marrow cancer. The bone marrow is highly sensitive to radiation. Under S.1002, my VA claim would be considered under the rate of 50% of compensation. Senator Cranston, my husband was not 50% exposed to radiation; he was not 50% sick, and he is not 50% dead. I cannot apprciate the bill in its present form.

Many of us in NARS, like Jean Ralph, would support S. 1002 whole-heartedly IF each of the three categories of radiogenic diseases is considered at 100%.

This parallels quite well the list of compensatable radiogenic illnesses accepted by the Veterans Administration. We, naturally, would prefer to utilize the full range of radiogenic illnesses which have and continue to be used by the Government of Japan as those for which residents or early entrants to Hiroshima and Nagasaki in August of 1945 are receiving compensation and health care. As regards the procedures outlined to revise the "official" dose reconstructions, we can only comment that the entire dosimetry program of the Nuclear Weapons Testing program from 1945 until 1962 was so flawed that any adjustment of its figures by whatever amount or percentage is ridiculous. You do not arrive at truth by manipulating falsehood.

In each of these bills, we note a lack of attention paid to the plight of the fastest-growing segment of our membership--the atomic widows, nor are the genetic problems of offspring addressed. We will discuss these issues below.

OTHER ISSUES: ABSENCE OF DUE PROCESS IN THE VETERANS ADMINISTRATION CLAIMS PROCESS

In previous years, we have noted material from the hearing record of the NARS v Walters/Turnage lawsuit, now in its fourth year. In this testimony, we will simply refer members of the House Veterans Affairs Committee to the testimony presented by Gordon Erspamer before the Joint Committee meeting on March 17, 1987. In this submission are listed some of the more egregious practices of the VA disclosed in discovery during this named lawsuit. They show clearly a pattern of illegalities and deprivation of due process rights for disabled veterans. The conduct of the Veterans Administration during the lawsuit has demonstrated such a callous disregard of the law that monetary sanctions totalling $105,000.00 have been levied against the Veterans Administration, and have already been paid by the agency. The appointment of a Special Master to supervise the Veterans Administration for the balance of the lawsuit,at the expense of the agency, a most unusual penalty, has also occurred.

OFFICIAL DOSE RECONSTRUCTIONS

In the analysis of the radiation injury compensation issue presented by Senator Alan Cranston to accompany S.1002, material calling into serious question the dose reconstructions prepared by contractors of the Defense Nuclear Agency and used to deny ionizing radiation injury claims by the Veterans Administration was included. We wish to state categorically that any future reliance on these official dose reconstructions is unjustified, given the record of actual badging of participants--fewer than 15% being badged throughout the operation; the lack of quality control of the badge reading; the inadequate monitoring devices used; the inability to monitor much of the ionizing radiation present to which a participant was exposed; and the absence of individual dose reconstructions based upon each individual's activities. Only one example will be cited of the eight independent dose reconstructions known to NARS, that of a veteran of Camp Hanford, Washington. He was informed by letter from the Defense Nuclear Agency that he received NO radiation. His independent dose reconstruction, based upon recently declassified documents, was 300 RADS TO HIS SCALP!!!!

-----4-----

LIMITED RANGE OF ILLNESSES DEEMED COMPENSATABLE BY THE PRESENT BILLS AND BY THE VA

NARS again urges that the appended list of radiogenic diseases be used as those deemed compensatable . It, as noted earlier, represents those accepted by researchers in Japan, who have conducted the bulk of independent research on radiogenic illnesses following atomic bomb detonations. Since these are accepted by the Japanese government, and have resulted for many years in compensation pensions and health care, we see no valid scientific reason our own Governmental agencies cannot benefit by over forty years of research and accept the list as also compensatable in the United States.

Finally, we wish to share with the Committee the results of our mailed survey, as of the first of this year. At that point, we had received responses from just under 4,000 atomic veterans or their surviving families. Our DATABASE now has over 5,000 entries with data on 5,000 atomic veterans, and the percentages are remaining constant.

As of 2/87, the NARS Database shows the following cancers and other illnesses out of 3,950 radiation survivors reporting:

No.	CANCER TYPE	NO.NARS	%
1	Leukemia	45	1.139
2	Bone Cancer	18	0.445
3	Multiple Myeloma	14	0.354
4	Thyroid	23	0.582
5	Breast (Female)	0	0
6	Lung	93	2.354
7	Liver	Note 2	
8	Skin	323	8.177
9	Esophagus	5	0.126
10	Stomach	9	0.227
11	Colon	60	1.518
12	Pancreas	8	0.202
13	Kidney	22	0.556
14	Urinary-Bladder	33	0.835
15	Salivary Gland	4	0.101
	TOTALS =	657	16.632
	Field Total =	3,950	

Added NARS Data	
Unspecified Cancers	42
Other Cancers	64
Other Illnesses/Dead	566
No Illnesses Reported	341

Note #1: Kidney, Urinary, & Bladder combined
Note #2: Liver Cancers included in NARS "Other" category.

WHAT CANADA IS DOING TO COMPENSATE ITS ATOMIC VETERANS

NARS has received communications updating the House of Commons transcripts which we appended to testimony we presented in 1985 and 1986. According to Parliament member Ray Skelly, and communications from our NARS Canadian Director, Al Draper, the Pension Board of Canada awards the atomic veteran a "Specially Meritorious" award under their Section 24 . This section was recently amended so that the widow will receive the full pension of the deceased atomic veteran for a year, and then is shifted to a "Widows Pension" worth about $1000 a month, with adjustments upward if there are dependent children who have not finished their schooling. The system is apparently working very well, and the veterans are compensated presumptively. Given that many of the veterans already compensated served alongside our own atomic veterans, it seems just that the United States veterans be compensated forthwith.

THE ATOMIC WIDOW

As NARS has noted in previous testimony, our Death Certificate Study indicates that atomic veterans are dying some 22 years earlier, on the average, than white males in the United States who were not ordered to observe atmospheric nuclear weapons tests. What this statistic means is that there are now hundreds of atomic widows in their late forties or fifties, most with children still in school, who must shoulder the burden of rearing and supporting their families alone, without the help and income formerly provided by the atomic veteran. Mrs. Jean Ralph, already identified, sent out over 500 letters to widows on NARS membership lists, alerting them to the amended VA list of radiogenic illnesses, urging that they reopen their Death and Indemnity claims. The notes she has received are heart-breaking. Many cannot work, few can assure their children the benefits of a college education, some have already sold the family home they struggled together to purchase, and have moved to small apartments, public housing, or into trailers. Their incomes are so reduced, it has proved impossible to keep up the home mortgage payments. So there are hundreds and perhaps thousands of middle-aged women, some of whom have tried for eight to ten years to obtain VA benefits, doomed to struggle against a Byzantine system which does not fulfill its pledge to care for the widow ond orphans of men who served their country in the military.

GENETICALLY-AFFECTED CHILDREN

In previous testimony, NARS has provided reports on chromosome abnormalities among its atomic veterans, which are accompanied by genetic problems in their offspring. Recently, work on the atomic bomb survivors of Hiroshima indicates that there is an increase in somatic cell mutations at specific sites on chromosomes found in the bodies of atomic bomb survivors. In addition, the incidence of these very specific chromosome alterations can be related to the dose of radiation to which these survivors were exposed. (Science, 24 April, 1987, page 445) Therefore, we again urge that chromosome tests be made available for atomic veterans whose offspring exhibit genetic defects which may be related to radiation exposure, that these tests be available gratis, and that they be performed by independent cytogenetic laboratories. After a reasonable number of such determinations have been done, we urge that they be evaluated by independent geneticists, and if a correlation is found, appropriate legislation to compensate the offspring be developed. We would suggest legislation introduced in the 99th Congress by Senator Paul Simon be used as a possible model.

Thank you for your attention.

Edward Victor Fenton, NARS Vice President

Testimony prepared by Dorothy Legarreta, Ph.D.

Dorothy Legarreta

ADMINISTRATIVE DIRECTOR, NARS

May 15, 1987

HIROSHI TERASHIMA, M.D.
INTERNAL MEDICINE

Diplomate American Board of Internal Medicine

411-30th Street Suite 304
Oakland California 94609
(415) 835 2744

October 22, 1984

Mr. Kanji Kuramoto
1109 Shell Gate Place
Alameda, California 94501

Dear Mr. Kuramoto:

The following medical illnesses are equivalent to what is listed as medical illnesses qualifying for government benefit for atomic bomb survivors: Japan

1. Anemia. Leukemia
2. Liver Function abnormalities (except viral or serum hepatitis
3. Cancer
4. Endocrine (hormone) abnormalities
   Example: Diabetes mellitus
5. Stroke, brain hemorrhage
6. Circulatory organ dysfunction
   Example: Hypertensive cardiovascular diseases, etc.
7. Kidney dysfunction
   Example: Chronic nephritis, nephrotic syndrome
8. Visual organ dysfunction
   Example: Cataract (except hereditary type)
9. Respiratory organ dysfunction
   Example: Lung tumor
10. Musculoskeletal system abnormalities
    Example: Deforming arthritis
11. Digestive system abnormalities from ulcer/inflammation
    Example: Stomach ulcer

Sincerely,

H. Terashima

Hiroshi Terashima, M.D.

HT:w

A RESUME OF MEASURES FOR ATOMIC BOMB SURVIVORS IN JAPAN

Ministry of Health and Welfare

August 1985

The Atomic Bomb Survivors Medical Treatment Law and subsequently the Atomic Bomb Survivors Special Measures Law were enacted in 1957 and 1963, respectively, for the purpose of promoting medical care and welfare measures for atomic bomb survivors exposed in Hiroshima and Nagasaki.

I. Atomic bomb survivors as defined by the law of 1957 are provided health handbooks. The number of these handbook holders as of 31 March 1985 is 367,344. These handbooks are issued by prefectural governors and the mayors of Hiroshima City and Nagasaki City upon application by atomic bomb survivors who conform to any of the following.

1. A person who at the time of the atomic bomb detonation was directly exposed within Hiroshima City or Nagasaki City or within a specified adjacent area of these cities or a person who at the time was in utero of a mother under the foregoing situation.

2. A person who entered within two weeks after the atomic bomb detonation a zone about two kilometers from the hypocenter of the atomic bomb or a person who at the time was in utero of a mother under the foregoing situation.

3. A person who engaged in relief of atomic bomb survivors or other activities to be physically affected by radiation or a person who at the time was in utero of a mother in the foregoing situation.

II. At present, the Japanese Government provides to health handbook holders the following Medical care, allowances, and welfare measures. Funds are also provided for research and investigation related to atomic bomb survivors. The total budgetary outlay in the fiscal year (FY) of 1985, that is, from April 1985 to March 1986, is 429.0 million dollars computed at an exchange rate of 240 yen to one US dollar.

A. The budget for medical care to be provided this year in accordance with the Atomic Bomb Survivors Medical Treatment Law is 88.4 million dollars which is allocated as follows.

1. $500,000 for medical treatment of designated diseases. Cost of medical care involved in treatment of diseases attributable to atomic bomb radiation is borne in its entirety by the Government.

2. $81,600,000 for medical treatment of diseases in general. For treatment of diseases other than designated diseases, the Government bears that portion of the expenses not covered by health insurance. Consequently, atomic bomb survivors need not bear any expense involved in treatment of diseases in general.

3. $6,200,000 for health examination of atomic bomb survivors. Health examinations are available four times a year, i.e. regular examinations are provided twice a year and in addition two examinations are available at request.

B. In accordance with the Atomic Bomb Survivors Special Measures Law, various allowances as described below are provided to atomic bomb survivors with the amount for this fiscal year totalling 327.0 million dollars.

1. Special Medical Care Allowance: $450 per month will be payable to survivors who are suffering from diseases or injuries designated by the Minister of Health and Welfare to be attributable to atomic bomb radiation (2,014 cases in FY 1984).

2. Special Allowance: $166 per month will be payable to survivors who have been cured of these diseases or injuries designated by the Minister of Health and Welfare to be attributable to atomic bomb radiation (1,762 cases in FY 1984).

3. Atomic Bomb Microcephaly Allowance: $155 per month will be payable to survivors who have microcephaly due to atomic bomb radiation (24 cases in FY 1984).

4. Health Management Allowance: $110 per month will be payable to survivors who have any of eleven types of disorders including circulatory disturbances such as hypertensive heart disease, motor disturbances, visual disturbances such as cataract, hematopoietic disturbances, liver function disturbances, and endocrine disturbances (216,538 cases in FY 1984).

5. Health Allowance: $55 per month will be payable to survivors who were directly exposed within two kilometers from the hypocenter and those who at the time were in utero of mothers in the foregoing situation (25,788 cases in FY 1984).

   Health Allowance: $110 per month will be payable to survivors of the foregoing category who are either physically handicapped of the 1st to 3rd grade as defined in the Physically Handicapped Persons Welfare Law or suffering with keloids or living alone without any kin and 70 years of age or more (2,096 cases in FY 1984).

6. Nursing Aid Allowance: $152 per month will be payable to survivors having mental or physical disturbances requiring the employment of a person for nursing aid (5,413 cases in FY 1984).

7. Family Aid Allowance: $47 per month will be payable to survivors having severe disturbances requiring the assistance of a near-paid person (21,733 cases in FY 1984).

8. Funeral Allowance: When an atomic bomb survivor dies, $471 will be payable to the person who holds the funeral (5,808 cases in FY 1984).

   The Special Allowance, Health Management Allowance, Health Allowance, Nursing Aid Allowance, and Family Aid Allowance are not payable to those having a family member paying an annual income tax exceeding $3,382 or when the annual income of a family with two children and with one working parent exceeds $33,247.

C. As welfare measures, a total of 4.9 million dollars is made available as subsidies for the following:

1. Atomic Bomb Hospitals and Homes for Atomic Bomb Survivors

2. Home helper and consultation services for atomic bomb survivors

3. Atomic Bomb Memorial Ceremonies

D. For research and investigation of atomic bomb survivors, a budget of 8.7 million dollars is provided for the following.

1. Research program of Radiation Effects Research Foundation

2. Research and investigation of atomic bomb diseases

3. Survey on present status of atomic bomb survivors

NATIONAL ASSOCIATION OF
RADIATION SURVIVORS
VETERANS · CIVILIANS · VICTIMS · FRIENDS

REASON "FRED" WAREHIME
President

P.O. Box 398
Riverdale, Calif. 93656
Bus. (209) 924-3059
Res. (209) 867-4365

April 21, 1987

G.V. (Sonny) Montgomery
Chairman
House Veterans Affairs Committee
218A Rayburn Building
Washington, D.C. 20515

Dear Congressman Montgomery:

Having worked with you and the Veterans Affairs Committee for several years, it is very upsetting for me to have to write this letter as I am sure that both of us have, in our own way, been trying to arrive at a solution to the problems of the Atomic Veterans and their families.

I want you to know that I, nor any other member of the Board of the National Association of Radiation Survivors had approved or had any prior knowledge of the content of the full page ad, "My Country, My Country, Why Have You Forsaken Us?" as was seen in the Washington Post on Tuesday, March 17, 1987.

This ad was an undertaking of our former Administrative Director, an attorney, and an individual member of our organization that paid for the ad.

It was presented to our Board after the fact, and was very vehemently opposed by an overwhelming majority who contested both the statement about you and the statement that called for all "Peace Organizations" to endorse us.

I am sure that you are well aware that NARS is neither "Dove" nor "Hawk", we are just looking for justice for all those that have been legitimately affected by radiation during the mis-directed beginnings of the Atomic Age.

If this improper action by our former Administrative Director has caused you any embarrassment, I and the full Board of the National Association of Radiation Survivors wish to apologize, and sincerely hope that in the future we will be alert enough to prevent a like occurrence.

I am taking the liberty of sending a copy of this letter to the rest of the members of your committee and the Senate Veterans Affairs Committee, as well as Dr. Dorothy Legarreta and attorney Gordon Ersparner.

Sincerely,

Reason F. Warehime

Reason F. Warehime

CC: As stated

MAY 5 1987

PRESIDENT
John Burke
Box 2735
Evergreen, Co.
303-674-3127

NATIONAL ASSOCIATION OF RADIATION SURVIVORS
VETERANS CIVILIANS VICTIMS FAMILIES

EXECUTIVE DIRECTOR
Dorthy Legarreta PhD.
78 El Camino Real
Berkley, Ca.
415-654-0100

Congressman G.V. ("Sonny") Montgomery
2184 Rayburn House Office Bldg.
Washington, D.C. 20515

May 1, 1987

Dear Congressman Montgomery,

I understand you received a letter dated April 21, 1987 over the signature of Reason " Fred " Warehime as president of NARS. First of all I would like for you to know , as senior vice president , that I had no prior knowledge of Mr. Warehime's letter dated April 21, 1987. I would also like for you to know that I am the current president of NARS and that Dorthy Legarreta PhD. is the Executive Director of NARS and has the full support and confidence of NARS Board of Directors and Executive Board. We stand by the full page ad that was placed in the March 16, 1987 issues of the Washington Post and National Weekly by NARS. We believe the contents of said ad to be true and correct. You may wish to inform the other members of the House and Senate Veterans Affairs Committee of the contents of this letter.

Sincerely,

John Burke-President
Box 2735
Evergreen, Co. 80439

A Better Deal for Atomic Veterans

At the beginning of this session of Congress, The Post urged repeal [editorial, Jan. 24] of a law that effectively keeps lawyers out of veterans' claims cases by limiting the fee they can be paid for such work to $10. Only if lawyers were enlisted, The Post argued, would the "atomic veterans"—those who claim to have suffered injury from their participation in nuclear weapons tests many years ago—be able to get a fair hearing as they press their claims against the government.

Since that editorial appeared, bipartisan bills have been introduced in the House and Senate to deal with the problem. As we have suggested, neither heeds The Post's advice to abolish the $10 fee limit, and the approach they take will do far more to secure relief for atomic veterans than would bringing lawyers into the cases.

More than 200,000 veterans are estimated to have been exposed to atomic bomb radiation from the late 1940s to the early 1960s, when atmospheric testing ceased. Only about 6,000 of them have ever claimed benefits based on health conditions that they believe resulted from their exposure. Fewer than 100 claims have been allowed by the Veterans Administration.

The frustration of these claimants, and the sympathetic basis for their claims, are clear. But in the scientific community, the health conditions likely caused by radiation exposure and the degree of exposure likely to produce any such condition have been unclear. In light of this uncertainty, Congress has been reluctant to establish entitlement to benefits. The VA decisions denying service connection reflect this reluctance.

Believing that a consensus has developed that leukemia and other conditions are the probable result of a minimum level of exposure, and relying on the benefit of the doubt that Congress gives veterans' claims, we support the legislation currently pending, which presumes service connection when a veteran establishes the specified exposures and health conditions.

This legislation deals with the substantive problem—the considerable scientific uncertainty surrounding the issue of the atomic veterans—instead of the procedural matter of the $10 fee limit.

The Post calls the fee limit an "ongoing problem faced by veterans every day." But in fact the lawsuit challenging the $10 limit on which The Post's editorial was based applies only to the 6,000 radiation claims. This is a small number compared with the more than 5 million benefit decisions the VA makes every year, all of which come under the fee limitation.

The lawsuit seeks to prove that radiation claims are so complex that due process requires removal of the limit in order to make paid lawyers available. Implicitly at issue is the adequacy of free assistance provided to atomic veterans by nonlawyer representatives employed by veterans' organizations such as Disabled American Veterans.

The Post asserts that "skilled legal participation is essential" to handle radiation claims. But even assuming that atomic veterans could hire a Louis Brandeis, if Congress remains reluctant to grant the entitlement—to make the sort of broad and ultimately unprovable presumption contained in the pending legislation—then no lawyer can make much of a difference.

Should the presumption we support be enacted, a better solution will have been provided to atomic veterans. First, the remedy will be tailored to the problem. Second, and more important, a relaxed entitlement standard will virtually guarantee benefits for eligible claimants regardless of whether they have lawyers.

The Post supported legislation in the last session of Congress to permit judicial review of VA claims—the same legislation it now supports that would do away with the fee limit. That legislation failed last year. The continued preclusion of such judicial review (except, of course, in cases where a constitutional issue is involved) makes it more understandable why paid lawyers are unnecessary in the VA claims process. So does a recent inspector general's report concerning overcharging of Social Security claimants. It found that of $100 million in attorneys' fees paid, $23 million was excessive.

But the procedural legislation is pending again, and it is important not to confuse the related issues of judicial review and the fee limit. Developments in the case seeking paid lawyers for atomic veterans' claims have been used to support court involvement with all VA claims. The proper means of dispensing mass justice in an administrative state should not be determined in that limited lawsuit. Moreover, the issues it raises will best be resolved by the substantive legislation we support.

—Charles E. Joeckel Jr.

The writer is the executive director of the Disabled American Veterans.

Office of General Counsel Washington D.C. 20420

Veterans Administration

MAY 20 1987

May 19, 1987

In Reply Refer To:

Honorable G. V. (Sonny) Montgomery
Chairman, Committee on Veterans' Affairs
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

The Veterans' Advisory Committee on Environmental Hazards was established pursuant to Public Law 98-542. It consists of 15 members, 4 lay members and 11 scientific members. (A brief biographical sketch of the members is enclosed; currently, there is one lay member vacancy.) Its principal purpose is to review the scientific literature concerning the health effects of exposure to dioxin or to ionizing radiation and to make whatever recommendations it deems appropriate to the Administrator of Veterans' Affairs concerning these issues.

The Committee has held 5 meetings since its inception in 1985 and has made a number of recommendations to the Agency, the majority of which relate to the issue of the health effects of exposure to ionizing radiation. For example, in its review of the Agency's proposed regulations implementing Public Law 98-542, the Committee recommended that diseases additional to those proposed by the Agency be considered to be radiogenic. Subsequently, the Agency adopted the recommendations of the Committee and included the additional diseases. The Committee has also responded to questions posed by the Veterans Administration. These questions have addressed such issues as whether male breast cancer, posterior subcapsular cataracts, or thyroid nodular disease should be considered to be radiogenic (to which the Committee responded affirmatively) and what are the appropriate latency periods for diseases that are considered to be radiogenic.

The support the Committee has received from the Agency has been more than adequate to enable us to do our job. The Agency has considered thoughtfully the advice we have rendered to it and, to date, has accepted all of our recommendations.

2.

At the request of the Committee on Veterans' Affairs, the Veterans' Advisory Committee on Environmental Hazards has reviewed and considered H.R. 1811, S. 453, and S. 1002, various bills that relate to the issue of compensation of veterans who served with the occupation forces of Nagasaki or Hiroshima, Japan prior to July 1, 1946, or who participated in the atmospheric testing of a nuclear device and subsequently developed a covered disease.

H.R. 1811 would presume service connection for all forms of leukemia (except chronic lymphatic leukemia), for polycythemia vera, thyroid cancer, bronchogenic carcinoma, and female breast cancer becoming manifest to a degree of ten percent at any time within thirty years of the veteran's participation in an atmospheric atomic test or with the occupation forces.

S. 453 would presume service connection for all forms of leukemia (except chronic lymphatic leukemia) becoming manifest within thirty years and liver cancer, multiple myeloma, or cancer of the bone marrow becoming manifest five or more years after the veteran's service with the occupation forces or participation in an atmospheric detonation of a nuclear device.

S. 1002 would provide disability and death benefits for a variety of diseases, the amount of the benefit being dependent upon the degree of certainty of association between the disease and exposure to ionizing radiation. The diseases listed as being strongly associated with radiation exposure are thyroid cancer manifested five or more years after participation or leukemia manifested withi thirty years.

Diseases which are listed as showing a moderate association with radiation exposure and as not being shown to be associated with other significant risk factors are: cancer of the colon, small intestine, stomach, liver (except where cirrhosis or hepatitis B is indicated), bile ducts, gall bladder, and pancreas, lymphomas (excluding Hodgkin's disease), and multiple myeloma if manifested five or more years following exposure. These diseases would be compensated at fifty percent of the regular rate otherwise payable.

Diseases listed as being somewhat associated with radiation or as equally or more strongly associated with other risk factors than with radiation are cancer of the lung, esophagus, rectum, pharynx, liver (when cirrhosis or hepatitis B is indicated), kidney, urinary tract, bladder, brain and nervous system, salivary glands, and bones and joints and cutaneous melanoma when manifested five or more years following exposure. The Administrator is to give special consideration in the adjudication of claims for benefits based upon these diseases.

3.

The Veterans' Advisory Committee on Environmental Hazards has consistently expressed the view that the determination of a causal association between exposure to ionizing radiation and the subsequent development of a disease must be consistent with scientific knowledge. A variety of factors must be considered in arriving at a determination. These include the dose of radiation to which the individual was exposed, the age at the time of exposure, the sex of the individual, the habits and lifestyle of the individual and so forth. Further, the Committee believes that recognition must be given to the fact that the lower the amount of radiation exposure, the more unlikely is there to be an association between that exposure and a later arising disease.

The Committee recognizes that this issue is one that continues to generate high interest and high emotion. While a great deal is known about the effects of exposure to ionizing radiation, especially to high levels, much uncertainty remains. That uncertainty, however, revolves around the degree of probability that a given cancer was caused by a given low dose of radiation. It can be stated in any event that the lower the level of ionizing radiation, the lower the probability of causation. The degree of certainty that policy makers require to make decisions concerning compensation is not a scientific one but a socio-political one.

The Advisory Committee views its role primarily as one of making certain that available scientific evidence is brought to bear by persons responsible for these policy judgements. It is our considered view that while S. 1002 is, in some respects, the more refined proposal in terms of incorporating available evidence, even the choices it embodies cannot be justified on the basis of sound scientific data. Very low level exposure to ionizing radiation has never been shown to appreciably affect one's risk of incurring cancer, yet S. 1002 would presume causation for <u>any</u> exposure in cases in which certain diseases later develop, and for exposures as low as one rem for a second category of diseases. <u>Second, we are</u> unaware of any justification for providing this remedy only for exposures resulting from the detonation of nuclear weapons, without considering exposures resulting from the myriad other sources to which service members were (and continue to be) subjected. Third, in considering the possible effects of exposure to ionizing radiation, other causes, often much more important, for example smoking and lung cancer, must also be considered. Finally, we are unaware of any credible evidence to justify the padding of official military dose data as VA would be required to do in assessing the merits of claims involving a third category of diseases.

4.

As a technical matter, we would also note that no reference is made in S. 1002 to female breast cancer although such cancer has been characterized by the Committee on the Biological Effects of Ionizing Radiation as one of the organs most susceptible to radiation carcinogenesis. It should be noted that the Advisory Committee does not believe that an absolute distinction should be made between female breast cancer and male breast cancer as concerns the probability of causation by radiation (as is made by H.R. 1811).

The Committee also notes that the thirty-year period for the manifestation of leukemias is not consistent with scientific information indicating that they may become manifest more than thirty years after exposure (although the probability of association after thirty years is very small).

Finally, the Committee notes that H.R. 1811 presumes service connection for polycythemia vera. The Committee has reviewed the scientific literature and concluded that polycythemia vera is not a radiogenic disease and thus this presumption is contrary to the scientific evidence currently available.

In concluding, it is important to note that the Committee believes that the approach now being utilized by the Veterans Administration is fully consistent with the current understanding of the health effects of exposure to ionizing radiation. The approaches suggested by each of the measures addressed in these comments are not consistent with current scientific knowledge. If any of these proposals are to be adopted, it is strongly urged that they not be adopted under the guise of being consistent with good science for clearly the changes proposed here are not.

Thank you for this opportunity to present our views on these legislative proposals.

Sincerely,

Frederic L. Conway

OLIVER H. MEADOWS
Chairman
Veterans' Advisory Committee
on Environmental Hazards

Enclosure

VETERANS' ADVISORY COMMITTEE ON ENVIRONMENTAL HAZARDS

Dioxin Experts

George D. Lathrop, M.D., Ph.D., Science Applications International Corporation, Boerne, Texas
Dr. Lathrop received his medical degree from the University of Illinois in 1962 and his doctorate in epidemiology from the University of California at Berkley in 1968. Formerly the Chief, Epidemiology Division, United States Air Force School of Aerospace Medicine, Dr. Lathrop was the chief investigator for the Air Force "Ranch Hand" study. He is a Fellow of the American College of Preventive Medicine and is certified by the American Board of Preventive Medicine. He is a member of several professional organizations, including the American Public Health Association and the Texas Society of Infectious Diseases.

Walter Melvin, M.D., Professor of Environmental Health Sciences, Colorado State University, Fort Collins, Colorado
Dr. Melvin received his medical degree from the University of Colorado in 1949, a Master of Public Health degree in industrial hygiene from the Harvard University School of Public Health, and a Doctor of Science degree in Environmental Toxicology and Occupational Health from the University of Cincinnati in 1962. He is a founding member of the American College of Toxicology, a Fellow in the American Public Health Association, and a member of a number of other professional associations.

James S. Taylor, M.D., Department of Dermatology, Cleveland Clinic Foundation, Cleveland, Ohio
Dr. Taylor received his medical degree in 1966 from Indiana University and is certified by the American Board of Dermatology. He currently is the head of the section on Industrial Dermatology at the Cleveland Clinic, a post he has held since 1973, and has written several publications on chloracne.

Radiation Experts

James V. Neel, M.D., Ph.D., Professor of Genetics, University of Michigan Medical School, Ann Arbor, Michigan
Dr. Neel received his doctorate in genetics in 1939 and his medical degree in 1944, both from the University of Rochester. He served on the National Research Council's Atomic Bomb Casualty Commission. His membership in professional organizations includes the National Academy of Sciences, the Association of American Physicians, the American Philosophical Society, and the American Society of Naturalists. His principal professional interest is in the area of the genetics of man. He has had extensive experience in the area of the genetic effects of radiation.

2.

Arthur C. Upton, M.D., Institute of Environmental Medicine, New York University Medical Center, New York, New York
Dr. Upton received his medical degree from the University of Michigan in 1946 and is certified by the American Board of Pathology. He has had extensive experience in the area of the effects of radiation exposure with particular interest in the pathology of radiation injury and endocrine glands, cancer, carcinogenesis, experimental leukemia, and aging. He was recently the Director of the National Cancer Institute.

Edward W. Webster, Ph.D., Department of Radiology, Massachusetts General Hospital, Boston, Massachusetts
Dr. Webster received his doctorate in electrical engineering from the University of London in 1946. His particular areas of interest are radiological physics, including radiation dosimetry and protection, in which he is certified by the American Board of Radiology. He is a member of a number of professional associations, including the American Association of Physicists in Medicine, the Health Physics Society and the Society of Nuclear Medicine.

Generalists

Michael Bender, Ph.D., Brookhaven National Laboratory, Upton, New York.
Dr. Bender received his doctorate in biology from the Johns Hopkins University in 1956. He has had experience in the field of radiation and genetics. He is a member of several professional societies, including the American Society for Cell Biology, the Radiation Research Society and the Environmental Mutagen Society.

Theodore Colton, Sc.D., Professor of Public Health, Boston University School of Public Health, Boston, Massachusetts
Dr. Colton received his doctorate from the Johns Hopkins University in 1960. He has had extensive experience in the field of biostatistics and epidemiology. The professional organizations to which he belongs include the Society for Epidemiological Research, the American Public Health Association, and the Biometrics Society. He is a Fellow of the American Statistical Association.

Leonard T. Kurland, M.D., Dr. P.H., M.P.H., Chairman, Department of Medical Statistics and Epidemiology, Mayo Clinic, Rochester, Minnesota
Dr. Kurland received his medical degree from the University of Maryland in 1945, his master's degree in public health from Harvard University in 1948 and his doctorate in public health from the Johns Hopkins University in 1951. He is certified by the American Board of Preventive Medicine. Among his professional interests is the epidemiology of chronic disease. He is a member of the American Epidemiological Society.

3.

Warren K. Sinclair, Ph.D., President, National Council on Radiation Protection and Measurements, Bethesda, Maryland
Dr. Sinclair received his doctorate in physics from the University of London in 1950. His professional interest is in the areas of radiation protection, radiation physics, and radiation biology. His membership in professional organizations includes the Radiation Research Society, the Society of Nuclear Medicine, and the Association of Physicists in Medicine.

Armon F. Yanders, Ph.D., Professor of Biological Sciences and Director, Environmental Trace Substances Research Center, University of Missouri, Columbia, Missouri
Dr. Yanders received his doctorate in zoology from the University of Nebraska in 1953. A geneticist and former Dean of the College of Arts and Sciences of the University of Missouri at Columbia, he is a member of the American Society of Zoologists, and the Genetics Society of America. His research has involved the genetic effects of ionizing radiation and toxic chemicals.

Lay Members

Oliver Meadows, Godley, Texas
Mr. Meadows is a former National Commander of the Disabled American Veterans and former staff director of the House of Representatives' Veterans' Affairs Committee. A disabled veteran of World War II, he currrently serves on the Administrator's Educational Assistance Advisory Committee.

Hon. Michael Zimmerman, Supreme Court of Utah, Salt Lake City, Utah
Justice Zimmerman was recently appointed to the Supreme Court of Utah. As the Governor of Utah's former representative on the Department of Energy's Offsite Dose Assessment Advisory Committee, he has a demonstrated interest in the issue of radiation-induced illnesses.

Col. Eileen Bonner, Washington, D.C.
Col. Bonner is the current president of the Reserve Officers' Association. A registered nurse, she is a doctoral candidate at Columbia University and a health care administrator.

○